УНИВЕРЗИТЕТ У БЕОГРАДУ
- МАШИНСКИ ФАКУЛТЕТ –
Број: 344/4
Датум: 09.05.2013. године
Београд, Краљице Марије бр.16

На основу чл. 66 Закона о високом образовању (Сл. гласник 76/05, 100/107, 97/08, 44/10 и 93/12) и чл. 12.3. Статута Машинског факултета, Изборно веће Машинског факултета је на седници одржаној дана 09.05.2013. године, донело следећу

О Д Л У К У

Предлаже се **проф.др Душан Секулић,** са Универзитета у Кентакију, САД у звање гостујућег професора на Машинском факултету Универзитета у Београду.

Одлуку доставити:Већу научних области техничких наука и архиви.

ДЕКАН
МАШИНСКОГ ФАКУЛТЕТА

Проф.др Милорад Милованчевић

УНИВЕРЗИТЕТ У БЕОГРАДУ
Машински факултет

ИЗБОРНОМ ВЕЋУ МАШИНСКОГ ФАКУЛТЕТА

ОВДЕ

На основу одлуке Изборног већа Машинског факултета у Београду број 344/2 од 21.02.2013. године, а на основу предлога за избор професора др Душана Секулића, са Универзитета у Кентакију, САД, у звање гостујућег професора на Машинском факултету Универзитета у Београду, именовани смо за чланове Комисије за писање извештаја у саставу:

- проф. др Владимир Стевановић,
- проф. др Војкан Лучанин,
- проф. емеритус Мирољуб Аџић.

На основу прегледа достављене документације подносимо следећи

И З В Е Ш Т А Ј

Професор др Душан Секулић, Универзитет у Кентакију, САД, предложен је за звање гостујућег професора на Универзитету у Београду, Машински факултет, за одржавање дела наставе на више предмета на мастер и докторским студијама.

У складу са чланом 3 **Правилника о Условима и начину ангажовања гостујућег професора на Универзитету у Београду,** Гласник Универзитета у Београду, *Година XLV, број 135, 11. јул 2007.,* предвиђено је да се наставник може изабрати у звање гостујућег професора ако има:

1. већи број научних радова објављених у водећим међународним часописима,
2. већи број научних радова саопштених на међународним скуповима,
3. остварене резултате у развоју одговарајуће образовно-научне области
4. већу цитираност научних резултата и
5. међународну научну репутацију и то:
   - да је био гост-уредник у угледним међународним научним часописима;
   - да је председавао међународним научним конференцијама;
   - да има чланство у уређивачким одборима међународних научних часописа;
   - да је аутор међународне научне монографије.

У складу са наведеним, из биографије предложеног наставника и на основу библиографских података, може се издвојити следеће:

1. проф. Секулић је објавио 42 рада у врхунским међународним часописима из категорије М21 (видети одељак В овог Извештаја),
2. проф. Секулић има 79 радова, саопштених на међународним скуповима (видети табелу у Прилогу 1),
3. кандидат је остварио следеће значајне резултате у развоју следећих образовно-научних

области (видети прилог Г овог Извештаја):

- развој топлотних размењивача, што је приказано у монографији Shah, R.K. and **Sekulic, D.P**. **(2003)** Fundamentals of Heat Exchanger Design, ***John Wiley***, New York, **ISBN 0-471-32171-0**;
- развоја метода лемљења, што је приказано у монографији **Sekulic, D.P. (2011)** Advances in Brazing: Science, Technology and Applications, ***Woodhead Publ.,*** Cambridge, UK**.** 2013. **ISBN 0 85709 423 8**.
- неповратност у термодинамици и генерација ентропије са применама на истраживање одрживог развоја везано за енергетске ресурсе, што је приказано у монографији Bakshi, B., Gutowski, T., **Sekulic, D.P. (2011)** Thermodynamics and the Destruction of Resources, ***Cambridge University Press***, Cambridge, UK, 2011. **ISBN 978-0-521-88455-6.**

4. радови проф. Секулића су цитирани преко 400 пута у међународним часописима од стране других аутора,
5. проф. Секулић има значајну међународну научну репутацију, што показује следеће:
   - професор др Душан Секулић је почасни члан Америчког удружења машинских инжењера („Fellow of ASME“),
   - уредник је књига реномираних издавача из САД (Begell House, Inc.) и Енглеске (Cambridge University Press) и члан је уређивачких одбора међународних часописа „International Journal of Heat Exchangers“ и „Thermal Science Journal“,
   - објавио је 3 истакнуте монографије међународног значаја (категорија М11) и поглавља у 9 књига водећег међународног значаја (категорија М13),
   - стални је рецензент за Научну фондацију САД („National Science Foundation-NSF“), Истраживачки фонд природних и инжењерских наука Канаде („Natural Sciences and Engineering Research Council of Canada“), Истраживачки фонд Онтарија у Канади и других научних фондација у Јужној Америци, Европи и Азији,
   - одржао је већи број предавања и семинара на универзитетима у свету и у међународним компанијама, учествовао је у организацији већег броја међународних научних скупова (видети образац у прилогу 1 и CV проф. Секулића у прилогу 2).

Следи детаљнији приказ биографије и остварених наставних и научних резултата професора Секулића који га кандидују за звање гостујућег професора на Универзитету у Београду.

А. Биографски подаци

Професор др Душан Секулић је рођен у Новом Саду 1949. године. Дипломирао је на Машинском факултету 1972. године и на Природно-математичком факултету, на Одсеку за физику, 1976. године, на Универзитету у Новом Саду. Магистарски рад је одбранио 1978. године у оквиру заједничких последипломских студија Машинских факултета Универзитета у Београду и Универзитета у Новом Саду. Докторску дисертацију под насловом „Фазна промена у граничном слоју при прелазу топлоте и масе слободном конвекцијом“ одбранио је 1981. године на Машинском факултету Универзитета у Београду.

У периоду од 1973. до 1977. године Душан Секулић је био асистент на Машинском факултету Универзитета у Новом Саду. Зимски семестар 1977. године провео је као гостујући истраживач на Техничком универзитету у Минхену. За доцента на Техничком факултету Универзитета у Новом Саду је изабран 1977. године. Школску 1988./89. годину је као Фулбрајтов стипендиста провео на Дјук Универзитету у САД. Такође, 1989. године је био

гостујући истраживач на престижном Масачусетском институту за технологију. На Техничком факултету Универзитета у Новом Саду је изабран за ванредног професора 1988. године, а за редовног професора 1993. године. Након тога професорску и истраживачку каријеру наставља у САД. Године 1993. и 1994. био је гостујући професор на Универзитету у Тенесију, у периоду од 1994. до 1996. године гостујући професор на Маркет универзитету у Милвокију, а 1996. и 1997. године гостујући професор на Универзитету у Кентакију. У периоду од 1997. до 2007. године проф. др Душан Секулић је директор истраживања и развоја размењивача топлоте на Универзитету у Кентакију. Од 2006. године до данас је професор консултант на Харбинском институту за технологију у Кини.

Професор др Душан Секулић је изабран за редовног професора на Универзитету у Кентакију, на Одсеку за машинство, 2007. године. Од 2011. године носилац је почасног професорског звања "J.G. Morris" (Endowed Professorship) на Универзитету у Кентакију. Такође, директор је последипломских студија на наведеном одсеку и директор је Лабораторије за напредне технике спајања метала и размењиваче топлоте. Заменик је директора Центра за енергетске анализе у индустрији који делује уз подршку Министарства енергетике САД.

Професор др Душан Секулић је почасни члан Америчког удружења машинских инжењера („Fellow of ASME"). Уредник је књига реномираних издавача из САД (Begell House, Inc.) и Енглеске (Cambridge University Press), као и уређивачких одбора међународних часописа „International Journal of Heat Exchangers" и „Thermal Science Journal". Рецензент је радова за 36 међународна часописа и књига међународних издавача, као што су: „Applied Physics", „Langmuir", „Journal of Aerosol Science", „Ceramics International", „Royal Society Proceedings A", „Environmental Science and Technology", „Journal of Alloys and Compounds", „Physica C", „*AIAA* Journal of Thermo physics and Heat Transfer", „International Journal of Heat and Mass Transfer", „International Journal of Heat and Fluid Flow", „Heat Transfer Engineering", „Journal of Engineering for Gas Turbines and Power, Trans. ASME", „John Wiley, New York", „Marcel Dekker, Taylor and Frances", и друге. Посебно наглашавамо да је стални рецензент за Научну фондацију САД („National Science Foundation-NSF"), Истраживачки фонд природних и инжењерских наука Канаде („Natural Sciences and Engineering Research Council of Canada"), Истраживачки фонд Онтарија у Канади и других научних фондација у Јужној Америци, Европи и Азији.

Одржао је већи број предавања и семинара на универзитетима у свету и у међународним компанијама, као што су: University of Illinois, Urbana Champagne, Gent University, Gent, Belgium, Massachusetts Institute of Technology, Bern University of Applied Science, Switzerland, Washington State University, Pulman, WA, University of Dortmund, Dortmund, Germany, Harbin Institute of Technology, Harbin, China. Honeywell, Torrance, CA, Texas Instruments, Digital Light Processing, Dallas, TX, German Aerospace Center, Institute of Space Simulation, Cologne, The International Centre for Theoretical Physics, Trieste, Italy, General Motors Corporation, Harrison, Lockport, NY, USA и други.

Проф. Секулић је ожењен и отац је двоје деце. Држављанин је Републике Србије и САД.

Б. Наставна активност

На Одсеку за машинство Универзитета у Кентакију држи наставу из сталних курсева „Основе преноса топлоте" на додипломској настави и „Виши курс конвективног преноса топлоте" на

последипломској настави. Последње три године редовно држи предавања на Масачусетском институту за технологију у САД из предмета „Енергија, одрживи развој и процена животног циклуса“. Поред тога држао је наставу из већег броја курсева на Универзитетима Маркет, Тенеси и Кентаки, као што су: Феномени техника лемљења и заваривања, Простирање топлоте у различитим енергетским и неенергетским применама, Енергетски системи, Примењена термодинамика, Криогеника, Пројектовање и анализа размењивача топлоте, Прелазни процеси у размењивачима топлоте и Одрживо инжењерство.

Професор др Душан Секулић је до сада руководио израдом преко 20 докторских и магистарских теза.

В. Библиографија научних и стручних радова

Током свог веома плодног истраживачког рада проф. др Душан Секулић је објавио 3 књиге у издању „Wiley, Cambridge University Press“ и „Woodhead Publishing – Cambridge“, као и 70 радова у међународним часописима. Радови проф. Секулића су цитирани преко 400 пута у међународним часописима од стране других аутора. Следи приказ одабраних радова проф. Секулића у периоду од 2000.-те године до данас.

Истакнута монографија међународног значаја М11

1. Shah, R.K. and **Sekulic, D.P**. **(2003)** Fundamentals of Heat Exchanger Design, ***John Wiley***, New York, **ISBN 0-471-32171-0**; (216 citations till 02/13 in Web of Science, ISI, 2013) for details see: http://www.wiley.com/WileyCDA/WileyTitle/productCd-0471321710.html, Translation into Chinese of the Shah, R.K. and **Sekulic, D.P**. **(2010)** Fundamentals of Heat Exchanger Design, ***China Machine Press***, Beijing, 2010. **ISBN 978-7-111-28881-7 (**translated by Cheng Lin into Mandarin, C(M)).
2. **Sekulic, D.P. (2011)** Advances in Brazing: Science, Technology and Applications, ***Woodhead Publ.,*** Cambridge, UK**.** 2013. **ISBN 0 85709 423 8**.
3. Bakshi, B., Gutowski, T., **Sekulic, D.P. (2011)** Thermodynamics and the Destruction of Resources, ***Cambridge University Press***, Cambridge, UK, 2011. **ISBN 978-0-521-88455-6** Library acquisitions: more than 160 Libraries included in WorldCat (http://newfirstsearch.oclc.org) worldwide (July, 2012)

Поглавље у књизи водећег међународног значаја М13

4. S. G. Kandlikar. G.P. Celata, H.M. Steinhagen, J. Barbosa, S.V. Alekseenko, Y. Chudnovski, P. Posklas, **D.P. Sekulic**, B. Spalding, and E. Son, Heat Exchanger Design Handbook, Vol. 1-4, **D.P. Sekulic** Editor for Vol. 1, 2 and Vol. 3, ***Begell House Inc***., Redding, CT, 2009, USA. http://hedh.begellhouse.com/editorial/
5. K. Saito (Editor**), Sekulic D.P.** (Editor in Section 3, Materials, Manufacturing and Environment) Progress in Scale Modeling, ***Springer Verlag***, New York, 2008; ISBN 9781402086816 http://search.barnesandnoble.com/Progress-in-Scale-Modeling/Kozo-Saito/e/9781402086816
6. R.J. Krane et al., co-edited by **D.P.Sekulic,** Thermodynamics and the Design, Analysis, and Improvement of Energy Systems, **(1994)** AES-Vol.33, ASME, New York, p. 403.
7. B. R. Bakshi, T.G. Gutowski, and **D.P. Sekulic (2011)** Introduction in the book: Thermodynamics and the Destruction of Resources (T.G. Gutowski, B. Bakshi and **D.P. Sekulic**), ***Cambridge University Press***, pp. 1-14; ISBN 978-0-521-88455-6.
8. S. Loyd et al, **D.P. Sekulic**, Z. Zhang **(2007)** Discussion on “Frontiers of the Second Law”, in Meeting the Entropy Challenge, ***American Institute of Physics***, ISBN 978-0-7354-0557-8, Melville, NY 2008, pp. 253-261.

9. **D.P. Sekulic (2008)** Molten Metal Micro Layer Prior to Joint Formation during Brazing. Prolegomena for Scaling Analysis, in Progress in Scale Modeling, K. Saito Editor, Sektion 3 Editors, **D.P. Sekulic et al**., ***Springer Verlag***, New York, 2008; ISBN 9781402086816,, pp. 391-402.
10. **D.P. Sekulic** and Edeskuty, F.J. **(2007)** Superconductors – Cryogenic Stabilization, in ***Wiley Encyclopedia of Electrical and Electronics Engineering***, (Edited by John Webster), 2nd Edition (A revised invited chapter article – electronic media edition; The first editions in the encyclopedic hard copy version, and in a separate book, see below) Contributed Chapter (#1307) *Wiley & Sons Inc.*, Hoboken, NJ, November 2006.
11. **Sekulic, D.P. (2005)** Sizing of a Crossflow Compact Heat Exchanger, ***Heat Transfer Calculations***, (Mayer Kutz, Editor, an **invited chapter**), *McGraw Hill*, New York, 2005, Chapter 29, pp. 29.1-29.31.
12. **D.P. Sekulic** and Edeskuty, F.J. **(2001)** Superconductors – Cryogenic Stabilization, an **invited article** in ***Engineering Superconductivity*** (Edited by P.J. Lee), *Wiley-Interscience*, New York, pp. 204-218. (see also A7 and A4)

Рад у врхунском међународном часопису М21

13. Li, Y., Liu, W., **Sekulic, D.P.** and He, P., **(2012)** Reactive wetting of AgCuTi filler metal on the TiAl-based alloy substrate, ***Applied Surface Science***, 2012, Vol. 250, pp. 343-348. ISSN 0169-4332, IF 2,103.
14. W. Liu, L. Lu, Y. Li, Y. Cai and **D. P. Sekulic** (**2012**) Preferential Spreading of Molten Metal on an Anisotropic Microstructured Surface, ***Europhysics Letters***, 2012, Vol. 97, pp. 46003-p1-p6. ISSN 0295-5075, IF 2,171.
15. W. Liu, Y. Li, Y. Cai and **D. P. Sekulic** (**2011**) Capillary Rise of Liquids over a Microstructured Solid Surface, ***Langmuir***, 27(23), pp 14260-14266. ISSN 0743-7463, IF 4,186.
16. W. Liu, **D.P. Sekulic (2011)** Capillary driven molten metal flow over topographically complex substrates, ***Langmuir***, Vol. 27, pp. 6720–6730; On line DOI: 10.1021/la201091u; Publ. Date April 28, 2011. ISSN 0743-7463, IF 4,186.
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19. T. G. Gutowski, M.S. Branham, J.B. Dahmus, A.J. Jones, A. Thiriez, and **D.P. Sekulic (2009)**, Thermodynamic Analysis of Resources Used in Manufacturing Processes, ***Environmental Science & Technology***, Vol. 43, pp. 1584-1590. ISSN 0013-936X, IF 4,630.
20. H. Zhao, D.R. Nalagatla, **D.P. Sekulic (2009)** Wetting Kinetics of Eutectic Lead and Lead-free Solders: Spreading over the Cu Surface, ***Journal of Electronic Materials***, Vol. 38, no. 2, pp. 284-291. ISSN 0361-5235, IF 1,428.
21. **D.P. Sekulic (2009)** An entropy generation metric for non-energy systems assessments, ***Energy*** Vol. 34, pp. 587-592 (Online at: http://www.sciencedirect.com/science/journal/03605442). ISSN 0360-5442, IF 2,952.
22. H. Wang, H Zhao, **D. P. Sekulic**, Y. Qian **(2008)** A Comparative Study of Reactive Wetting of Lead and Lead-Free Solders on Cu and (Cu_6Sn_5/Cu_3Sn)/Cu Substrates, ***Journal of Electronic Materials.*** Vol. 38, 2008, pp. 1640-1647. ISSN 0361-5235, IF 1,283.

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23. H. Zhao and **D.P. Sekulic (2008)** Wetting Kinetics of a Hypo-Eutectic Al – Si System, ***Materials Letters*** Vol. 62, No. 15, May 2008, pp. 2241-2244. ISSN 0167-577X, IF 1,748.
24. H. Zhao, and **D.P. Sekulic (2006)** Diffusion-Controlled Melting and Re-solidification of Metal Micro Layers on a Reactive Substrate, ***Heat Mass Transfer***, Special issue (Ed. Prof. C Amon), Vol. 42, pp. 464-

469 (See also B53). ISSN 0947-7411, IF 0,343.

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Г. Приказ и оцена научног рада кандидата

Области истраживања проф. Секулића су енергетски ресурси и одрживи развој, енергетске и ексергетске анализе, моделирање транспортних феномена при обради материјала у производним технологијама, напредне технике спајања коришћењем течних метала и лемљењем, пројектовање компактних размењивача топлоте, и друге. У периоду од 2000. године до данас истраживачки пројекти којима је руководио проф. Секулић су финансирани у износу од приближно 2 милиона долара, а тренутно је један од руководилаца образовног програма у области индустријске енергетике који финансира DOE у износу од 1.500.000 долара.

Научни допринос у горе наведеним радовима проф. Секулића (односе се на последњих 15 година) је усмерен у три основна правца. Први је сумиран у широко прихваћеној књизи (може се наћи у 326 светских библиотека према статистици "Worldcat"): "Основи дизајна топлотних размењивача" [1], други у књизи посвећеној спајању метала која је управо публикована у Кембрицу, Енглеска, [2], "Наука, технологија и примене тврдог лемљења" која окупља 19 истраживачких тимова од Јапана и Кине, преко Европе, до САД, а трећи се односи на термодинамику и одрживи развој [3] "Термодинамика и разарање ресурса" (може се тренутно наћи у 174 библиотека у свету). У великом броју поглавља у другим књигама, проф. Секулић је сумирао првенствено резутате својих истраживачких тимова у току последње две деценије, који се односе на термодинамику, пренос топлоте, моделирање процеса, и криогенику, [4-12]. Недавно публиковани радови везани су за изучавање понашања течних метала под дејством површинског напона током простирања преко храпавих површина [13-18], [20] [22-24]. Са сарадницима из САД и Немачке публиковао је више радова из области раста кристалне структуре у течним металима током стврдњавања [25-26]. Велики број радова односи се на истраживања транспортних процеса везаних за формирање металних спојева легура алуминијума, калаја, олова, титанијума, и високотемпературских легура са ренијумом и молибденом, које је остварио у сарадњи са својим студентима из САД и Кине, особито из Харбинског института за технологију и Јаотонг Универзитет у Шангају, [27-30]. Предмет истраживања је био и одређивање топографије слободних површина течних метала под дејством површинског напона, [31-33]. Проблем дифузије силицијума на разделним површинама течне и чврсте фазе течних легура и формирање резидијума је од пособеног значаја за предвиђање квалитета и интегритета металних спојева [28-30]. У низу радова публикованих раније током осамдесетих и деведесетих година проф. Секулић је допринео области истраживања неповратности у термодинамици и проблемима генерације ентропије,

што је сумирано у прегледном раду [8]. Та тема постаје поново актуелна у области истраживања одрживог развоја везано за енергетске ресурсе [6-7]. Сарадња са бројним развојним центрима индустријских корпорација је изван јавног домена, а публиковани резултати односе се првенствено на дизајнирање топлотних размењивача и њихову производњу [11].

Д. Закључак и предлог

На основу изложене биографије проф. др Душана Секулића, приказа његових досадашњих изузетних резултата у научно-истраживачком раду и универзитетској настави и његове богате библиографије, мишљења смо да би проф. Секулић, као гостујући професор на Машинском факултету Универзитета у Београду, дао значајан допринос настави на Мастер академским студијама и Докторским студијама. Такође, проф. Секулић би својим богатим научним искуством дао значајан допринос као учесник на текућим пројектима Министарства просвете, науке и технолошког развоја Републике Србије, као и на евентуалним будућим домаћим и међународним научно-истраживачким пројектима. Трошкови одржавања наставе, превоза и смештаја гостујућег професора неће теретити заједничка средства Машинског факултета у Београду нити средства Универзитета у Београду.

На основу свега изложеног чланови комисије сматрају да проф. др Душан Секулић, редовни професор на Универзитету у Кентакију, Одсеку за машинство, („University of Kentucky, Department of Mechanical Engineering“), у свему испуњава све услове предвиђене Законом о високом образовању, Статутом Универзитета у Београду и Правилником о условима и начину ангажовања гостујућег професора на Универзитету у Београду и имају част и задовољство да предложе Изборном већу избор проф. др Душана Секулића у звање гостујућег професора на Универзитету у Београду, Машински факултет, за период до 5 година.

У Београду, 24.04.2013. године

Проф. др Владимир Стевановић,
Машински факултет Универзитета у Београду

Проф. др Војкан Лучанин
Машински факултет Универзитета у Београду

Проф. емеритус др Мирољуб Аџић
Машински факултет Универзитета у Београду

Прилог 1: Образац прописан од стране Универзитета у Београду.
Прилог 2: CV проф. Душана Секулића.
Прилог 3: Уговор о ангажовању гостујућег професора.

ПРИЛОГ 1 ОБРАЗАЦ ПРОПИСАН ОД СТРАНЕ УНИВЕРЗИТЕТА У БЕОГРАДУ

ИМЕ И ПРЕЗИМЕ: Душан Секулић, Универзитет у Кентакију, САД	
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РЕЗУЛТАТИ У РАЗВОЈУ ОБРАЗОВНО-НАУЧНЕ ОБЛАСТИ	Резултати проф. др Секулића у области развоја конструкција и технологија израде размењивача топлоте сумирани су у широко прихваћеној књизи: Shah, R.K. and **Sekulic, D.P**. **(2003)** Fundamentals of Heat Exchanger Design, ***John Wiley***, New York, ISBN 0-471-32171-0. Друга научно-образовна област у којој је проф. Секулић дао значајан допринос на светском нивоу је развој нових метода спајања метала и приказана је у управо публикованој монографији **Sekulic, D.P. (2011)** Advances in Brazing: Science, Technology and Applications, ***Woodhead Publ.*****,** Cambridge, UK**.** 2013., ISBN 0 85709 423 8. Посебно се издваја допринос у изучавању и предвиђању понашања течних метала под дејством површинског напона током простирања преко храпавих површина, као и примене ових техника у производњи топлотних апарата. Дао је значајне доприносе у области раста кристалне структуре у течним металима током стврдњавања, формирања металних спојева легура алуминијума, калаја, олова, титанијума и високотемпературних легура са ренијумом и молибденом, као и одређивања

		топографије слободних површина течних метала под дејством површинског напона. Такође, од посебног значаја за предвиђање квалитета и интегритета металних спојева су резултати остварени у изучавању дифузије силицијума на разделним површинама течне и чврсте фазе. Трећа образовно-научна област у којој је проф. Секулић дао значајне резултате је развој нових метода у планирању одрживог развоја на основу термодинамичких истраживања неповратности и генерације ентропије, што је приказано у монографији Bakshi, B., Gutowski, T., **Sekulic, D.P. (2011)** Thermodynamics and the Destruction of Resources, ***Cambridge University Press***, Cambridge, UK, 2011., ISBN 978-0-521-88455-6.
ЦИТИРАНОСТ НАУЧНИХ РЕЗУЛТАТА		420 цитата (аутоцитати нису укључени) h index = 7
МЕЂУНАРОДНА РЕПУТАЦИЈА	ГОСТ УРЕДНИК МЕЂУНАРОДНОГ ЧАСОПИСА	/
	ПРЕДСЕДАВАО МЕЂУНАРОДНИМ НАУЧНИМ КОНФЕРЕНЦИЈАМА	**Session Co-Organizer,** 4th Dubrovnik Conference on Sustainable Development of Energy, Water and Environmental Systems, Dubrovnik, Croatia, June 4-8. The same function at multiple International Conferences. **Round Table Chair**, "Thermodynamics and the Destruction of Resources," 4th Dubrovnik Conference on Energy, Water and Environmental Systems, Dubrovnik, Croatia, June 4-8th, 2007. **Member of the International Scientific Advisory Board** for IBSC 2006, ASM International, the American Welding Society. Invited speaker at the 2nd **Int. Conference on Green and Sustainable Chemistry** and 9th Annual **Green Chemistry and Engineering Conference**, Washington DC, June 2005 Entropy and Materials/Exergy & manufacturing Invited as a **Co-Chairman** of technical Sessions at the 2005 Summer Heat Transfer Conference, July 2005, San Francisco, CA; Symposium in Honor of Bora Mikic. International Brazing and Soldering Conference, Yangzhong, China – **Chairman of a Technical Session**., 2001. ISHMT-ASME Heat and Mass Transfer Conference, Pune, India – **An invited speaker, 2000.** ISHMT-ASME Heat and Mass Transfer Conference, Kanpur, India – **An invited lecture, 1997.** Int. Congress & WAM ASME, Advanced Energy Systems Division – A Session Organizer, 1994. World Conferences on Experimental Heat Transfer, Fluid Mechanics and Thermodynamics, **Lead Scientist, 1991-1993.**

	ЧЛАНСТВО У УРЕЂИВАЧКИМ ОДБОРИМА МЕЂУНАРОДНИХ НАУЧНИХ ЧАСОПИСА	International Journal of Heat Exchangers“ и „Thermal Science Journal“
	АУТОР МЕЂУНАРОДНЕ МОНОГРАФИЈЕ	4. Shah, R.K. and **Sekulic, D.P**. **(2003)** Fundamentals of Heat Exchanger Design, ***John Wiley***, New York, **ISBN 0-471-32171-0**; (216 citations till 02/13 in Web of Science, ISI, 2016) for details see: http://www.wiley.com/WileyCDA/WileyTitle/productCd-0471321710.html, Translation into Chinese of the Shah, R.K. and **Sekulic, D.P**. **(2010)** Fundamentals of Heat Exchanger Design, ***China Machine Press***, Beijing, 2010. **ISBN 978-7-111-28881-7 (**translated by Cheng Lin into Mandarin, C(M)). 5. **Sekulic, D.P. (2011)** Advances in Brazing: Science, Technology and Applications, ***Woodhead Publ.*,** Cambridge, UK**.** 2013. **ISBN 0 85709 423 8**. 6. Bakshi, B., Gutowski, T., **Sekulic, D.P. (2011)** Thermodynamics and the Destruction of Resources, ***Cambridge University Press***, Cambridge, UK, 2011. **ISBN 978-0-521-88455-6** Library acquisitions: more than 160 Libraries included in WorldCat (http://newfirstsearch.oclc.org) worldwide (July, 2012)
НАПОМЕНА		Уредник је књига реномираних издавача из САД (Begell House, Inc.) и Енглеске (Cambridge University Press).

ПРИЛОГ 2 CV проф. Душана Секулића

◆◆◆

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HIGHLIGHTS

(A) POSITION

Current positions at the University of Kentucky: *Secat J.G. Morris Aluminum Professor* at the *Department of Mechanical Engineering*; Director of the Advanced Bonding-Brazing Laboratory & Heat Exchanger Design Laboratory at the *Institute for Sustainable Manufacturing*; Director of Graduate Studies (MSE-MFS Program). Associate Director of the DOE *Kentucky Industrial Assessment Center:* Developing the next generation energy assessment, sponsored by US Department of Energy.

Previous academic positions (abroad and in US): Full time academic positions (from an assistant through a tenured, full professor position) at the *University of Novi Sad, Yugoslavia*; Visiting Professor positions in US (*University of Tennessee*, Knoxville; *Marquette University*, Milwaukee; *University of Kentucky*, Lexington); Visiting Research Positions [*Duke University (Senior Fulbright Scholar), Massachusetts Institute of Technology (Visiting Scholar), Technical University Munich*, *Germany* (DAAD Research Fellow)]

Other Positions, elsewhere: Consulting Professor, *Harbin Institute of Technology*, China (since 2007)

(B) RESEARCH

Total funding since at UK-USA: $ 3,489,000 (as PI $ 1,436,000 as CoPI $ 2,053,000); Multiple grants from NSF, DOE, KSEF, DoD and industry. Earlier funding not included.

Publications: Total of more than 170 scholarly publications, including (i) 3 books (4 editions):

1. *Fundamentals of Heat Exchanger Design, **Wiley**, Hoboken, NJ, 2003* ISBN 978-0-471-37171-2;
2. Chinese Translation of the *Fundamentals of Heat Exchanger Design*. published by ***China Machine Press***, Beijing, 2010, ISBN 978-7-111-28881-7;
3. *Thermodynamics and the Destruction of Resources*, published by the ***Cambridge University Press**, 2011*, ISBN 978-0-521-88455-6
4. *Advances in Brazing: Science, Technology and Applications*, ***Woodhead**, Cambridge, UK, in print 2012*, ISBN 978-0-85709-423-0

(ii) 2 co-edited books (Heat Exchanger Design Handbook, ***Begell House***, NY, 2009; ISBN 978-1-56700-254-6; Progress in Scale Modeling, ***Springer Verlag***, New York, 2008) ,

(iii) 14 comprehensive (invited) book chapters over 150 articles (74 international journal articles, 79 articles in edited books/proceedings).

Science Citation Index: more than **700** citations (*total*, including more than 200 citations of books) in ISI data base (February 26, 2013).

Joint publications (coauthored with advised students) resulting from PhD & MS work: **more than 60**.

(C) LECTURING

Developed and taught (graduate and undergraduate), USA: at **UK**, NSF TUES Grant course ME, ARC, MKT course (four colleges, coordinating faculty as the PI of the Project on Systems Thinking for Sustainability, ME 780 (2006, 2007), ME 620 (2007), ME 626 (1999, 2006-2012), ME 220 (1999), MSE 450 (2000, 2001), MFS/ME 699 (2004-2012), ME 101 (2005), ME 325 (2006, 2007-2012); at **Marquette**: MEEN 112 (1995, 1996), MEEN 106 (1996), MEEN 105 (1995); at **UT** M 332 (1993); at **MIT** Professional education program Summer 2011, Summer 2012, Summer 2013 (pending); **Elsewhere:** Thermodynamics and Heat Transfer, University of Novi Sad (Yugoslavia, developed and taught till 2004). **Graduate students and post-docs** [advised, both oversees (Belgium, Germany, China, Yugoslavia) and in US]. **Since at UK 2000-2012**: advising **MS 13, PhD. 7**, (total); **MS 5, PhD 4** (current).

(D) CONSULTING

Principal Investigator and Independent Expert: Heat exchanger design and manufacturing, Energy auditing, Brazed heat exchangers; Expert opinions (including court testimony) involve heat transfer, materials processing and manufacturing (micro PCM coated fabrics, shell-and-tube heat exchangers, compact heat exchangers, brazing and soldering technology (Al, Cu, Ti, SS, Sn, Ag, and others), metal foam applications (consulting for: Loral Space, SPX, Frederick and Company, HK Systems, SAPA, Amerigon, LightSail, GE Aviation, Delphi).

(E) PROFESSIONAL & UNIVERSITY SERVICE

Fellow of ASME; Director of Graduate Studies – MSE-MS Program, UK; **Senator,** UK Senate, **Member of editorial/advisory boards** of international journals; Member of Editorial Boards for publications for Begell House, Inc., and The Cambridge University Press, **Editor of ASME AES** publications; A journal **Guest editor**; ASME Conferences **Session organizer** and a member of an **International Scientific Board** (2005, 2006); ASME CRTD Committee member; **Reviewer**: NSF Review Panels, since 1997, reviewer for more than 30 international journals; Director of the Summer Institute (University of Kentucky Center for Manufacturing, 2004, 2005); **Member** of a two dozens of faculty committees throughout academic career (at the department, college, and university levels) – currently at UK, University of Kentucky: Senate Research Committee, College of Engineering: Graduate Studies team; ME Department: Graduate Study Committee, Laboratory Committee, Events committee. Former academic engagements abroad: Member of the Energy Commission (Science Foundation SIZNR, Yugoslavia) - Chair and/or Member 1981-1992; United Nations UNIDO UN/DTCD Expert 1988-1990; World Conferences on Experimental Heat Transfer-Lead Scientist 1991-1993; International Institute of Refrigeration (IIF) Paris-national (YU) representative, a member of the A1/2 Commission 1987-1995; Member of the ASME "Research Committee on Sustainable Products and Processes" 2010-present.

EDUCATION

1981 **D. Sc. Eng**., Heat Transfer (Mechanical Engineering-Cryogenics); Thesis title: *Phase change in a boundary layer near a cryo-surface*, University of Belgrade, Yugoslavia.

1978 **M. Sc. Engr**., Mechanical and Process Engineering; Thesis title: *De-sublimation and fog formation*, University of Belgrade and University of Novi Sad (a joint graduate program, 4 semesters not including the thesis work), Yugoslavia.

1976 **B. Sc., Physics**; BS Thesis title: *X-Ray diffraction study of thermal expansion coefficients of non-ferrous metals*, Department of Physics (8-semester curriculum not including the thesis work), University of Novi Sad, Yugoslavia

1972 **B. Sc. Eng**., Mechanical Engineering; BE Thesis title: *Modeling of a helium liquefaction piston – expansion engine cycle*, College of Engineering (10-semester curriculum including the thesis work), University of Novi Sad, Yugoslavia.

EMPLOYMENT/ACADEMIC POSITIONS

2011 – Present ***Secat J.G Morris Aluminum Professor**, University of Kentucky, Department of Mechanical Engineering*

2007 – 2011 ***Professor** (tenured, full professor), University of Kentucky, Department of Mechanical Engineering*
Director of Graduate Studies, MSE-MS Program, College of Engineering. Teaching duties include undergraduate/graduate courses, e.g., Elements of Heat Transfer (ME 325) Advanced Heat Convection (ME 626), Engineering Thermodynamics (ME 220), Advanced Engineering Thermodynamics (ME 620), Modeling of Resources Utilization in Engineering - Manufacturing (ME 699). Sistem Thinking for Sustainability (NSF-TUES) ARC, MKT ME 599. Advising MS/Ph.D. students (ME Department).
http://www.mfg.uky.edu/dir/sekulic/
http://www.engr.uky.edu/research/researchers/dusan-p-sekulic/

2006 - Present ***Consulting Professor**, Harbin Institute of Technology, Harbin, China*
Graduate students thesis adviser at the Harbin Institute of Technology, China (since 2003). Materials science transport phenomena involving metal joining; lead-free solder

related phenomena. Teaching graduate level courses (Materials Science and Engineering). http://today.hit.edu.cn/articles/2007/03-13/03091041.htm

2002 - 2006 ***Adjunct Professor****, Mechanical Engineering Department, University of Kentucky Department of Chemical and Materials Engineering*

Transport Phenomena for Materials Engineering (MSE) 450, External member for Ph.D. and/or M.S. theses committees at DM&IE, Marquette University.

1997 - 2007 ***Senior Research Manager****; Program Director for R&D in Brazing and Heat Exchanger Design and Manufacturing, University of Kentucky Institute for Sustainable Manufacturing,, University of Kentucky, College of Engineering, Lexington, KY*

Directs R&D related to: (1) fundamentals of metal joining processes (materials behavior in particular) for manufacturing; (2) design of compact heat exchangers; (3) sustainability of manufacturing processes. Supervises development of several research areas related to: (i) fundamentals of aluminum brazing for compact heat exchangers – aluminum compact heat exchangers with micro channel extruded tubes and multi-louver fins); copper, aluminum and carbon foam heat exchangers, (ii) thermal design and manufacturing of compact heat exchangers, (iii) metal foam joining (aluminum, copper, nickel and carbon), Funding: Governmental agencies (NSF, KSEF, DOE, DOD), industrial partners (Caterpillar, SeniorAuto Corporation, DELPHI, Commonwealth Aluminum, Pechiney, KB Alloys Corp., etc.) and UK Center for Manufacturing (Now "Institute for Sustainable Manufacturing").

1996-1997 ***Visiting Professor****, Department of Mechanical Engineering, University of Kentucky, Lexington, KY.*

Heat exchanger design theory; Establishment of the brazing R&D program and laboratory.

1994-1996 ***Visiting Professor****, Department of Mechanical and Industrial Engineering, Marquette University, Milwaukee, WI*

Teaching activities related to undergraduate as well as graduate level courses in the field of thermo-fluids. In particular, MEEN 111, MEEN 106, MEEN 112, MEEN 207, etc., (thermodynamics, energy systems modeling, simulation, and analysis, heat transfer.) Thermal equipment design R&D (in particular heat exchangers design), and re-development of the energy conversion processes laboratory. Research conducted in the fields of thermodynamics fundamentals and heat transfer. Ph.D. and M.S. theses committee member (Thermodynamics, Energy systems).

1993-1994 ***Visiting Research Professor****, Department of Mechanical and Aerospace Engineering, University of Tennessee, Knoxville, TN*

A co-principal investigator for a sponsored research project in the field of a thermodynamic analysis for refrigeration systems. Teaching: Engineering Thermodynamics, senior level undergraduate course. Holds simultaneously a tenured academic position (a full Professor) at the University of Novi Sad (Heat Transfer and Thermodynamics), and conducts research in the field of heat transfer (multi-fluid heat exchanger design).

1993-1995 ***Professor*** *(with tenure) College of Engineering, Department of Mechanical Engineering, University of Novi Sad, Yugoslavia* (teaching and research in thermo-fluid areas)

1988-1993 ***Associate Professor*** *(with tenure), College of Engineering, Department of Mechanical Engineering, University of Novi Sad, Yugoslavia*

Teaching and research in thermo-fluid fields (Heat Transfer and Thermodynamics). Advising undergraduate and graduate students. PI for a number of projects sponsored by National Science Foundations (SIZN, Yugoslavia), Department of Energy (USA), KFA Julich (Germany), and a number of industry sponsors in the fields of heat transfer augmentation, thermal energy efficiency, and heat exchanger design. Founder of the first heat transfer holographic visualization laboratory at an academic institution in former Yugoslav federation (for studies of low Re number flows and convection heat transfer augmentation phenomena).

1989 ***Visiting Scholar****, Department of Mechanical Engineering, Massachusetts Institute of*

Technology, (Prof. B. Mikic) Cambridge, MA.
Research in the fields of heat transfer augmentation and theory and design of heat exchangers.

1988-1989 ***Senior Fulbright Scholar****, Department of Mechanical Engineering and materials Science, (Prof. A. Bejan) Duke University, Durham, NC.*
Research in the fields of Thermodynamics and Heat Transfer, in particular engineering thermodynamics involving entropy generation studies.

1977-1988 ***Docent,*** *Faculty of Engineering, Department of Mechanical Engineering, University of Novi Sad, Novi Sad, Yugoslavia.*
Teaching and research in the fields of Thermodynamics, Heat Transfer, Cryogenics and Refrigeration.

1977 ***Visiting Research Fellow*** *(Thermodynamics and Heat Transfer), Lehrstul A fur Thermodynamics (Prof. Grigull and Prof. Straub), Technical University Munich, Germany.*
Research in the field of heat and mass transfer, boundary layers in a cryogenic domain.

1973-1977 ***Research Fellow*** *(Tenured) (Refrigeration, Cryogenics, Heat Transfer, 1973) Assistant (regular permanent research position – Assistant Professor) Faculty of Mechanical Engineering, University of Novi Sad, Yugoslavia.*
Research in cryogenics and refrigeration processes (design).

RESEARCH INTERESTS

Energy resources and **sustainable development**, **Thermodynamics** aspects of spreading/wetting phenomena (liquid metals), **advanced metal bonding processes**: Aluminum, Titanuium, Steel and Refractory metals Brazing, Soldering phenomena, **Compact heat exchanger design** for manufacturing, Modeling (transport phenomena) of materials behavior and processing for manufacturing, Sustainable engineering, M^4 – Micro/Meso Mechanical Manufacturing; Thermodynamics; Metal joining/brazing and soldering, interface phenomena, lead free solders. Metal foam applications.

EDUCATIONAL INTERESTS

Teaching interests involve two equally represented fields of study: **Energy resources modeling**, **Thermodynamics** and **Sustainability**, Thermo-fluid sciences – fundamentals and applications for design of (1) **Heat transfer** devices and (2) **Materials processing in manufacturing**. Most recent teaching activities involve development of new trans-disciplinary domains of study related to Sustainability Engineering (in particular "Modeling of the Resources Use," "Thermodynamics and the Destruction of Resources," and US NSF TUES Research project "Systems Thinking for Sustainability" interdisciplinary course involving 4 Colleges, DP Sekulic is PI).

EXPERTISE

Applied Thermodynamics and **modeling of transport phenomena** in (i) materials processing for energy and (ii) non-energy producing systems like in manufacturing (in particular modeling of brazing/soldering processes – diffusion, melting, reactive spreading, solidification); **Compact heat exchangers** (compact heat exchangers for automotive, aerospace, and process/chemical/cryogenics industries), Brazing, Heat & mass transfer phenomena in general (experimental and theoretical work); Thermal design theory, sustainable development and manufacturing. **Sustainable use of energy resources**

RESEARCH ACTIVITIES

Current Funded R&D Projects (for DOE Project see "Educational projects" below)

- Wetting of Liquid Metals on Rough Surfaces, Collaborative Project, **NSF – CBET -1234581; D.P. Sekulic, P.I. (UK)**, S. Mesarovic P.I. (WSU), 2012 – 2015, $ **366,000** total (UK:WSU=1:1).
- Systems Thinking for Sustainability, TUES Project, **NSF – 1044232, D.P. Sekulic P.I,** 2011-2014, **$200,000.**
- Analysis of Brazeability of Aluminum Trillium Brazing Sheet (Trillium Technology R&D), **D.P. Sekulic PI**, 2009-20011 – Extension for 2012 , SAPA Heat Transfer, AB & Sapa Technology, Canada-Sweden, 2009-2010 **$ 28,000; Extension** 2011 **$86,000;** Total **$ 114,000; Extension** for 2012 pending**.**
- Investigation of high temperature nano-composite braze for use with refractory materials, **D.P. Sekulic, PI**, 2009-2012, Semicon Associates, Ceradyne, **$ 36,000; Extension** 2011 **$ 36,000;** Total **$ 72,000**

Recent R&D Projects

- Assessing Manufacturing Sustainability on the Shop Floor: Modeling of Energy Resources use, **D.P. Sekulic, PI**, 2010, General Electric Aviation, $100,000; 2011 $100,000; Total: **$ 200,000.** Extension for 2012.
- **Brazing NN fins on MM** (undisclosed partner), 2011 **$50,000**.
- Advanced Heat Exchangers R&D, **D.P. Sekulic PI**, 2005-2008 Total **$ 191,799** (PI D.P. Sekulic), Caterpillar, Peoria**.**
- Metallic and Carbon Foam Micro Bonding, **KSEF-07-RDE-010**, End Date, March 30, 2009, **PI D.P. Sekulic, $ 19,602**
- Model Based Enterprise – Predictive Process Models for Sustainable Manufacturing, DoD/US Army Contract through Advanced Technology Institute (ATI), 2008-2009, **D.P. Sekulic, Co-PI**, PI I. Jawahir, **$375,000** & Additional funding **$ 178,000**
- M^4 Aluminum Joining Technology, **D.P. Sekulic**, **PI**, Kentucky Science and Engineering Foundation, **KSEF-829-RDE-007** 2005 – 2007; Total funds $ **90, 969**
- Brazing Feasibility Study, Senior Operations, (PI D.P. Sekulic,), **$ 2,000**
- Hot Stage Visualization of the Brazing Aluminum Cycle w/o New Coating Options, NN **($ 4,500**)
- Innovative Approach to Materials Joining in a Microwave Field, P.I. **D.P. Sekulic**, Co-PI F. Yang, Kentucky Science and Engineering Foundation **KSEF-525-RDE-005**, 2004 – 2005 (Total funds $ **15,000**).
- A New Brazing Flux made of $K_xF_yAl_z$ System for Aluminum Brazing, P.I. **D.P. Sekulic**, (May 2005 – September 2005) NN. (Total funds $ **15,000**)
- The hot stage microscopic study of the melting/spreading behavior of several $K_xF_yAl_x$ systems for Aluminum Brazing, (**P.I. D.P. Sekulic**) UK-CM 3238 (March 2005) NN. (Total funds $ **2,000**).
- Exergo Environomic Synthesis of Advanced Manufacturing Processes, Kentucky Science and Engineering Foundation, **KSEF-395-RDE-003** P.I. **D.P. Sekulic**, 2003 – 2004, (Total funds $**15,000**).
- Modeling of Joint Formation in Aluminum Brazing – Behavior and Control of Molten Cladding – (extended and supplemented 1999-2003.) PI – **D.P. Sekulic** (Co-Principal Investigators A.T. Male and J.G. Morris) Total funds for three years (1999-2002) $**283,669** + $ 146,340 (cost sharing part). (**NSF** DMII – Materials Processing and Manufacturing Program director Dr. Delcie Durham)
- **NSF** Travel grant (PI D.P. Sekulic) German Aerospace Center, Cologne and Abdus Salam Centre for Theoretical Physics, Trieste, Italy, Summer 2002, Supplemental funds $ **6,939**
- Brazing Sheet Development & Continuous Casting Al Brazing Sheet – **Commonwealth Aluminum** – Louisville, KY & Uhrchsville OH (1999-2003). PI – **D.P. Sekulic**. ($**51,000**). Monitor: Dr. Zhong Li, Manager of the New Product Research, Commonwealth Aluminum – Newport Rolling Mill, OH.
- Optimum Cladding Distribution and Brazed Joint Formation – Gen II HTC-GMT800, **DELPHI Harrison Thermal Systems**, Lockport, NY (1999-2000); PI – **D.P. Sekulic.** ($**60,000**.)
- Silicon Diffusion Across Clad-Core Interface of an Aluminum Brazing Sheet, **DOE** in cooperation with **High Temperature Materials Laboratory, Oak Ridge National Laboratory**, Oak Ridge, TN (P.I. **D.P. Sekulic**) A user program grant, 2000-2002).
- Analysis of Brazeability and Molten Cladding Flowability, **Pechiney Rolled Products**, Ravenswood, WV. Total funds US $ **11,500**. (2001 – 2002). Monitor Dr. Zayna Connor.

NOTE: Numerous earlier projects (before 1999, D.P. Sekulic as a PI or CoPI), sponsored by US and foreign foundations (US DOE, DAAD, KFA, Germany and NSF's in Yugoslavia) and industry, **are not**

listed here; for a selected list see Research Project Reports on pp. 31-35.

Educational Projects

"Developing the Energy Assessment Engineering Workforce via Student Education and Industrial Assessment Experiences" **$ 1,500,000 DOE,** PI. L. Holloway, **Co-PI's**, D. Colliver, **D.P. Sekulic,** and T. Henninger, 2011-2016.

PROFESSIONAL ACTIVITIES & SCIENTIFIC SOCIETY MEMBERSHIPS

Professional Commitments and Honors (Selected List)

- 2012 **Founding Member**, Technical Committee on Sustainable Production and Service Automation, IEEE Robotics and Automation Society.
- 2009 **Member**, Research Committee on Sustainable Products and Processes, ASME, Washington, DC.
- 2008 **Editor, Member of the Editorial Board**, "Heat Exchanger Design Handbook" (a seminal sourcebook for the field of heat exchanger design, Vol. 1-3, Begell House Inc.,
- 2008-present "**Who is Who in the World/US/Science/Education**" multiple editions, Marquis Who's Who.
- 2007 **Session Co-Organizer,** 4th Dubrovnik Conference on Sustainable Development of Energy, Water and Environmental Systems, Dubrovnik, Croatia, June 4-8. The same function at multiple International Conferences.
- 2007 **Round Table Chair**, "Thermodynamics and the Destruction of Resources," 4th Dubrovnik Conference on Energy, Water and Environmental Systems, Dubrovnik, Croatia, June 4-8th, 2007.
- 2007 A series of 20 **Invited lectures** at the Harbin Institute of Technology as a **Consulting Professor**, March 2007.
- 2006 **Invited lecturer** at the 11th International Invitational Aluminum Brazing Seminar, October 24-26, 2006, Livonia, MI, USA.
- 2006 NSF – **Member** of DMI Project **Review Panel** SBIR/STTI (Design and Manufacturing Innovation, Directorate for Engineering).
- 2006 **Invited speaker** at the Aluminum Brazing Seminar, October 11-13, 2006, Simsbury, CT.
- 2006 **Member of the International Scientific Advisory Board** for IBSC 2006, ASM International, the American Welding Society.
- 2006 Elected **Fellow of ASME**
- 2005 Invited speaker at the 2nd **Int. Conference on Green and Sustainable Chemistry** and 9th Annual **Green Chemistry and Engineering Conference**, Washington DC, June 2005 Entropy and Materials/Exergy & manufacturing
- 2005 Invited as a **Co-Chairman** of technical Sessions at the 2005 Summer Heat Transfer Conference, July 2005, San Francisco, CA; Symposium in Honor of Bora Mikic.
- 2005-present"**Who is Who in Science and Engineering**" 8th edition, Marquis Who'sWho
- 2004-present"**Who is Who in America**" 58th 59th 60th editions, Marquis Who'sWho.
- 2007-present**"Who is Who in Education,"** Marquis Who'sWho
- 2003-present, **Member of the Editorial Board** of the *International Journal of Heat Exchangers*
- 2003 **Invited Lecturer**, Worchester Institute of Technology, Mechanical Engineering Seminar, Worchester, MA
- 2002 NSF **Member of DMI Project Review Panels (Design and Manufacturing Innovation, Directorate for Engineering)**.
- 2001 International Brazing and Soldering Conference, Yangzhong, China – **Chairman of a Technical Session**.
- 2001 An **invited keynote speaker** at the "Science Forum," University of Novi Sad, Yugoslavia.
- 2001 NSF – **Member of a DMI (Design and Manufacturing Innovation, Directorate for**

Engineering) Projects Review Panel – Netshape Manufacturing.

- 2000 NSF – **Member of a DMI (Design and Manufacturing Innovation, Directorate for Engineering) Project Review Panel** – Netshape Manufacturing.
- 2000 ISHMT-ASME Heat and Mass Transfer Conference, Pune, India – **An invited speaker.**
- 1998-present **Member of the International Advisory Board** of the *Thermal Science Journal*
- 1990-present **Member of the Editorial Board** of the *Termotehnika* journal
- 1997 ISHMT-ASME Heat and Mass Transfer Conference, Kanpur, India – **An invited lecture**
- 1987-1995 Commission A1/2 (Cryogenics and Cryophysics), International Institute of refrigeration, Paris, France, A **Member of the Commission**
- 1994 Int. Congress & WAM ASME, Advanced Energy Systems Division – A Session Organizer
- 1991-1993 World Conferences on Experimental Heat Transfer, Fluid Mechanics and Thermodynamics, **Lead Scientist**
- 1993 WAM ASME, Session Co-Chairman
- 1990-1992 Scientific Committee of ECOS 92 (University of Zaragoza, Spain and AES Division of ASME), **Member of the Scientific Committee**
- 1988-1989 **Senior Fulbright Scholar**, Duke University, MIT
- 1988 **A Guest Editor**, *Yugoslav Applied Science Journal*
- 1988-1990 United Nations Industrial Development Organization, **UN/DTCD Expert**
- 1986-1992 Science Foundation AP-Yugoslavia, "Energy and New Technologies," **President of the Project Council**
- 1990-1992 Science Foundation APV-Yugoslavia, Engineering Science Program Committee, **Member of the Committee**
- 1981-1987 Science Foundation SIZ NR SAPV-Yugoslavia, Expert Commission on Energy Research Program, **Chair of the Commission**
- 1983-1986 Academy of Sciences VANU, Novi Sad, Yugoslavia, "Applied Numerical Methods," **Member of the Project Council**
- 1986 Academy of Sciences SANU, Belgrade, Yugoslavia, "Cryogenics and Superconductivity," **Member of the Conference Scientific Committee**
- 1988 Yugoslav ETAN Conferences, **Member of the Scientific Program Committee**.

Reviewer (selected list- Only while at UK, from 1997; reviews before 1997 not included)

Journal of Aerosol Science, 2012
Zeitschrift für Metallkinde: International Journal of Materials Research, 2012
Natural Sciences and Engineering Research Council of Canada 2012
Intermetallics (Elesvier) (since 2012)
Natural Sciences and Engineering Research Council of Canada (since 2011)
Materials Characterization, Elsevier (since 2011)
Ceramics International, Elsevier (since 2011)
Royal Society Proceedings A (since 2010)
Oil & Gas Science and Technology-Revue d'IFP Energies nouvelles,OGST(since 2009)
Environmental Science and Technology (since 2009)
Journal of Alloys and Compounds (since 2009, 2011)
Physica C, Elsevier (2008)
Thermal Sciences Conferences, Eindhoven, Nederland (2008)
Computational Materials Science (2008)
CIMAT – Center for Advanced Interdisciplinary Research in Materials, Chile (2008)
Songklanakarin Journal of Science and Technology, Thailand (2007)
Ontario Research Fund, Ministry of Research and Innovation, Toronto, Canada (2006)
AIAA Journal of Thermo physics and Heat Transfer (multiple since 2002)

Journal of the Electrochemical Society (2002)
Applied Mechanics Reviews (multiple since 2000)
International Journal of Heat and Mass Transfer (multiple since 1997)
National Science Foundation, Arlington, VA, USA (multiple since 1997)
US Civilian Research & Develop. Found, Arlington, VA, USA (multiple since 2004)
SAE International Publications (multiple since 2005)
Journal of Applied Physics & Applied Physics Letters (multiple since 2000)
Journal of Heat and Mass Transfer (multiple since 2004)
Journal of Heat Transfer, Trans. ASME, (multiple since 2005 till present)
Journal of Manufacturing Science and Engineering (1998)
International Journal of Heat and Fluid Flow, (multiple since 2000)
Numerical Heat Transfer, Int. J. of Computation and Methodology (multiple since 1997)
International Journal of Transport Phenomena (since 1999)
International Journal of Thermal Sciences (multiple since 1992)
Heat Transfer Engineering (multiple since 1997)
Experimental Thermal and Fluid Science Journal, (multiple since 2003)
Energy, International Journal (multiple since 2005)
Entropy, (multiple since 2005)
Thermal Science (multiple since 1997)
International Journal of Heat Exchangers (multiple since 2003)
Journal of Energy Resources Technology, Trans. ASME,
Journal of Solar Energy, Trans. ASME,
Journal of Fluids Engineering (multiple since 2003)
International Journal of Refrigeration (2003)
The Arabian Journal for Science and Engineering,
Journal of Engineering for Gas Turbines and Power, Trans. ASME (multiple since 1999)
World Conferences on Experimental Heat Transfer,
ASME-AES Division International Conferences,
ASME-IMECE Congresses (multiple since 1999)
ASME-JSME Conferences
ISHMT-ASME Conferences (multiple since 2001)
WAM-ASME, IEMEC Conferences (multiple since 1997)
ECOS ASME Conferences (multiple)
ASHRAE Conferences and publications
Marcel Dekker, Taylor and Frances
John Wiley, New York
CRC Press LLC, Boca Raton
Gordon and Breach Publishers, London
The Public Authority For Applied Education & Training, Kuwait (2009)
The University of West Indies
Sultan Qaboos University, Sultanate of Oman
Carnegie Mellon University, Pittsburgh
American Association for the Advancement of Science (AAAS), USA (2010, 2011)
University of Utah (2011)

Scientific/Professional Society Memberships

- American Society of Mechanical Engineers, **Fellow**
- American Welding Society, **Member**
- Society of Natural Philosophy, **Member**

Alumni: University of Novi Sad, Novi Sad, former Yugoslavia
Technische Universät München, Munich, Germany
DAAD – Deutscher Academische Austausch Dienst, Bonn, Germany
University of Belgrade, Belgrade, former Yugoslavia

Seminars (Invited), Professional Visits

2013	University of Illinois, Urbana Champagne, Seminar lecture ME, ACRC
2012	Gent University, Gent, Belgium, Seminar lecture
2012	University of Belgrade, Serbia, College of Engineering, Seminar
2012	Massachusetts Institute of Technology, Sumer course lectures
2011	Bern University of Applied Science, Switzerland, Seminar Lecture
2010	Washington State University, Pulman, WA, Seminar Lecture
2009	University of Dortmund, Dortmund, Germany, Seminar
2009	University of Illinois, Urbana-Champagne, Seminar Lecture
2009	Harbin Institute of Technology, Harbin, China. 5 Lectures
2009	Shandong University, Jinan, China 2009
2008	Massachusetts Institute of Technology, Cambridge, MA, Lecture
2007	Academy of Sciences and Arts, SANU, Belgrade, Institute of Mathematics, Mechanics Department Seminar Lecture
2007	Harbin Institute of Technology, School of Materials Science and Technology, Harbin, 10 Graduate Lectures
2007	Shanghai Jiaotong University, Mechanical Engineering Department
2006	AFC-Holcroft, Livonia, MI, Seminar at the Aluminum Brazing Seminar
2005	Department of Mechanical Engineering, College of Engineering, University of Kentucky, William Maxwell Reed Mechanical Engineering Seminar.
2004	Institute of Nuclear Sciences Seminar, Vinca, S&M
2004	University of Belgrade, Faculty of Mechanical Engineering Seminar
2004	Honeywell, Summer Institute Lectures, Torrance, CA
2004	Texas Instruments, Digital Light Processing, Dallas, TX
2003	Worcester Polytechnic Institute, ME Seminar, Worcester, MA
2002	German Aerospace Center, Institute of Space Simulation, Cologne, D
2002	The International Centre for Theoretical Physics, Trieste, Italy
1999, 2001, 2002, 2004	University of Kentucky, CME, ME, UKCM Seminars, Lexington, KY
2001, 2004	University of Novi Sad, Department of Mechanics Seminar, Yugoslavia
2001	Zenjiang Global Stars Materials Co. Ltd, Yangzhong, China
2000	Marqueette University, MEIE Department, Milwaukee, Wisconsin
1999, 2000	DELPHI-Harrison Thermal Systems, Lockport, New York
1999	Modine Manufacturing Company, Racine, Wisconsin
1998	Showa Aluminum Corporation, Oyama City, Japan
1998	Vanderbilt University, ME Department, Nashville, TN, USA
1997	The Pennsylvania State University, University Park, PA, USA
1997	University of Maryland, College Park, MD, USA
1996	Georgia Institute of Technology, Atlanta, GA, USA
1995	University of California, Berkeley, CA, USA
1994	Marquette University, Milwaukee, WI, USA
1992	General Motors Corporation, Harrison, Lockport, NY, USA
1992	Rochester Institute of Technology, Rochester, NY, USA
1990	Carnegie Mellon University, Pittsburgh, PA, USA
1989, 1991, 1992, 1993	University of Tennessee, Knoxville, TN, USA
1987, 1988, 1989, 1991	Duke University, NC, USA
1987, 1989, 1990, 1991, 1992	Massachusetts Institute of Technology, MA, USA
1987	Stanford University, CA, USA
1987, 1989, 1990, 1991	Los Alamos National Laboratory, NM, USA
1987	Oak Ridge National Laboratory, TN, USA
1987	North Carolina State University, NC, USA
1980	University of Stuttgart, Germany
1979, 1988, 1990	Technische Universitat Munchen, Germany
1979	Technische Universitat Aachen, Germany

1971 Technical University of Budapest, Hungary

TEACHING

Courses (Taught and/or Developed, Selected List)
Undergraduate & Graduate
Systems Thinking for Sustainability, TUES NSF sponsored course development (UK, 2011-14)
Energy Assessment 1: Industrial energy use (UK, 2012, 2013)
Modeling of Resources Utilization for Sustainable Engineering (UK, Lexington, ME/MFS, since 2009)
Design for Manufacturing Compact Heat Exchangers (HIT – China, graduate, 2007, 2009)
Advanced Engineering Thermodynamics (University of Kentucky, graduate, ME)
Advanced Heat Convection (University of Kentucky, Lexington, graduate, ME).
Engineering Thermodynamics I (University of Kentucky, Lexington, ME)
Transport Phenomena for Materials Engineering (University of Kentucky, Lexington, CME)
Modeling of Materials Processing in Manufacturing (University of Kentucky, Lexington, MFS)
Elements of Heat Transfer (University of Kentucky, Lexington, ME)
Introduction to Mechanical Engineering (University of Kentucky, Lexington, ME)
Heat Transfer I (University of Novi Sad, developed)
Heat Transfer (including heat exchangers theory, University of Novi Sad, grad., developed)
Thermodynamics I (University of Novi Sad, developed)
Thermodynamics II (University of Tennessee, Knoxville)
Engineering Thermodynamics (Marquette University, Milwaukee)
Energy Conversion Processes (Marquette University, Milwaukee, re-developed)
Energy Systems (University of Novi Sad, developed)
Refrigeration Systems, HVAC, Cryogenics (University of Novi Sad)
Applied Energy Conversion I (Marquette University, re-developed, grad./undergrad.)
Applied Energy Conversion II (includes design of heat exchangers, Marquette University, Milwaukee)
Energy Systems: Modeling, Simulation and Analysis (Marquette University, grad., re-developed)

Post Graduate - Short Courses and Special Courses

- "Energy, Sustainability and Life Cycle Assesment" Massachussets Institute of Technology, Short Programs, Professional Education, **MIT**, Cambridge, MA, June 19-June 23, 2011.
- "Energy, Sustainability and Life Cycle Assesment" Massachussets Institute of Technology, Short Programs, Professional Education, **MIT**, Cambridge, MA, June 13-15, 2012.
- "Compact Heat Exchangers' Design for Net Shape Manufacturing by Brazing," Harbin Institute of Technology, School of Materials Science and Engineering, March 5-13, 2007, **HIT**, Harbin, China. http://today.hit.edu.cn/articles/2077/03-06/03081640.htm
- "Compact Heat Exchanger Design and Manufacturing by Brazing" **Caterpillar,** Peoria, IL, August 13-14, 2007.
- "Design for Manufacturing and Operation of Compact Heat Exchangers" (Summer Institute, UK Center for Manufacturing, developed), **UK** Lexington, KY, 2003.
- "Design for Manufacturing and Operation of Compact Heat Exchangers," **Honeywell**, Torrance, CA 2004.

Mechanical Engineering Graduate Students' Study Areas

Transport Phenomena in Manufacturing and Materials Science, Sustainable engineering, Brazing and Soldering phenomena, Heat Transfer in Various Energy and Non-Energy Applications, Energy Systems, Applied Thermodynamics, Cryogenics, Heat Exchanger Design and Analysis, Transient Phenomena in Heat Exchangers.

Students advising and students' thesis work

Current PhD and MS students

PhD

Mr. Wen Liu, PhD student, ME Program, University of Kentucky; Thesis topic: "Transport phenomena associated with liquid metal flow over topographically modified surface" Expected Date of Defense: Fall 2012.

Ms. Yangyang Wu, PhD student at the University of Kentucky, "Modeling of Materials Processing involving surface tension driven liquid metal flow", Expected date of Defense: Fall 2016

Mr. Hai Fu, PhD student at the University of Kentucky, "Transport Phenomena involving thin layers of liquid metals governed by surface tension" Expected date of defense: Fall 2014

Mr. Cheng-Nien Yu, PhD Student, ME Program, Thesis topic: "Experimental study of spreading of liquid metals," Expected Date of Defense; December 2015

Master

Mr. Michael Schwindel, MS Student, ME Program, Thesis Topic: "Thermodynamic Modeling of Resources flows in a Manufacturing Process" Expected Date of Defense: TBD

Mr. Dong Fangxiao, MS Student, ME Program, Thesis topic TBD; Expected Date of Defense May 2013

Mr. Rahul Yashwant Nehete MS Student, ME Program, Thesis Topic TBD; Expected Date of Defense June 2013.

Mr. Cheng-Nien Yu, MS Student, ME Program, Thesis topic: "Non-flux aluminum controlled atmosphere bonding," Expected Date of Defense; January 2013

Mr. Jonathan Gasser, MS Student, ME Program, Thesis Topic TBD: Expected Date of Defense 2013

Former PhD and MS students (only the ones advised while residing at UK – degree obtained at UK or HIT)

Dr. Wen Liu, PhD student, Delphi-Harrison Thermal Systems, Lockport, NY since 2013.

Dr. Hongqin Wang, PhD student (Harbin Institute of Technology, visiting scholar at UK – co advising with Prof. Y. Qian at HIT); Topic: "Reactive Wetting of Lead-free Solders based on the Cu-Sn Interface Reaction" Defense date: June 26, 2007

Dr. Hui Zhao, PhD student at the University of Kentucky, Lexington, KY,
Thesis Title: "Transport phenomena involving molten clad during aluminum brazing process," Mechanical Engineering Department, Defense date: November 30, 2005. Currently a research engineer at the Creative Thermal Solutions, Urbana, IL.

Dr. Gao Feng, RA and PhD. Visiting scholar/Student at the University of Kentucky and Harbin Institute of Technology, China, Currently at the Osaka University, Osaka, Japan. At UK 2000-2003: Thesis title: "Mechanism of Brazed Joint Formation in Aluminum Compact Heat Exchangers" Thesis Defense: June 2003.

Mr. Subramaniam Saiganesh, MS Student, ME Program, Thesis topic: "Sustainability issues involving metal joining – The Case study of soldering" Date of Defense: December 2010.

Mr. Dinesh Nalagatla, MS student, ME Program, University of Kentucky; Thesis Title: "Influence of Surface Roughness of Copper Substrate on Wetting Behavior of Molten Solder Alloys" Date of Defense: November 28th 2007.

Mr. Jayasankar Sankara, MS student at the University of Kentucky, Lexington, KY, currently with Lexmark International, Lexington, KY
Thesis Title: Exergy Based Method for Sustainable Energy Utilization of a Net Shape Manufacturing System, Mechanical Engineering Department, Thesis Defense: December 1, 2005.

Mr. Ajay-Babu Renduchinatala, MS student, MFS Program, University of Kentucky; Thesis Topic: "Modeling of effluents release during CAB processes" Date of Defense: August 2006.

Mr. Ramnath Narayanaswamy, MS student, MFS Program. University of Kentucky; Thesis Topic: "Preferential molten clad spreading as a function of flux density distribution during aluminum brazing" Date of Defense: July 2006

Mr. Venkata Sandeep Boddapati, MS Student, MFS Program, University of Kentucky; Thesis Topic: "Exergy based metrics for assessment of manufacturing processes sustainability" Date of Defense:

August 2006.

Mr. Sajjad Sameer, MS - Project option, ME Program, University of Kentucky, Project Title: "Design and Manufacturing Considerations Involving Compact Heat Exchangers: Metal Foam vs. Plate-fin", Date of Defense: November 2006.

Mr. Daniel Busbaher, MS Student, ME Program, University of Kentucky: Project Topic: "Design for Manufacturing: High Temperature Brazing," Date of Defense: June 2008

Other Students:

MSTC Program and International cooperation

Mr. Aleksandar Sasha Zbrozek, 2005-2006, PL Dunbar High School, Project Title" Surface Tension Driven Molten Metal Flow over Reactive Flat and Grooved Surfaces", Awards: Senior Division, 1st place (Chemistry); Overall Winner, High School, Central Kentucky Regional Science & Engineering Fair, 2006; INTEL International, Indianapolis 2006, 4th place (Chemistry – Presented by Lucent Technologies); Co-Author of a paper at the Int. Brazing and Soldering Conf., ASM International, San Antonio, TX, 2006; Stanford University.

Mr. Michael Johnson, 2007-2008, PL Dunbar High School, Project Title: "Characteristics of Metal Foams"

Mr. Timo Externbrink 2010, RISE DAAD Scholarship, Dortmund University, Germany, Project Title Al-Al-Steel liquid metal spreading"

Post-doctoral associates

Dr. Liu Wen, RA , Institute for Sustainable Manufacturing, December 2012.

Dr. Michael Krivelev, FULBRIGHT Scholar, February 2012-July 2012, Udmurt State University, Russia.

Dr. Hui Zhao, RA and Post doctoral researcher at the University of Kentucky Center for Manufacturing, Lexington, since 01/2006 – 03/2008; Research area: "Modeling of joining processes"

Dr. Philip Hadinata, RA, University of Kentucky, KY, 02/2006 – 01/2007; Topic: "Modeling of molten metal flow through the micro grooves"

Dr. Maoai Chen, Visiting Scholar, Shandong University, China, May 2008 – May 2009, Topic: "Wetting of solder nano-composites"

Dr. Li Yulong, Visiting Scholar, Nanchang University, China, December 2010-December 2011 Topic: "Brazing phenomena – materials science aspects"

Former Students elsewhere (selected list of advised research/teaching assistants)

Dr. Herman Cila, MS, UNS, Yugoslavia, Currently Professor at the Johns Hopkins, Baltimore, MD, USA

Mr. Ivan Kmecko MS, UNS, Yugoslavia, Currently with DLP Texas Instrument, Dallas, TX, USA

Mr. Mitke Dzolev, MS at the University of Novi Sad, Yugoslavia

Mr. Hans Plichta, MS student (co), Marquette University

Dr. David Richardson, MS student (co), Marquette University, Currently at the University of Maryland,

Dr. Anthony Bowman, MS student (co), Marquette University, Milwaukee, USA, Currently with the Marquette University, Milwaukeee, USA

Dr. David M. Paulus, Ph.D student (co), Marquette University, Milwaukee, USA, Currently at the Technical University Berlin, Berlin, Germany.

Graduate Student's Thesis Committee Member (in addition to the above listed students)

Mr. Peter De Jaeger, PhD Thesis, "Thermal and Hydraulic characterization and modeling of open-cell aluminium foam, Gent University, Thesis Director: Michel De Paepe, Defense: November 29, 2012.

Mr. Xiaoji Ma, PhD Thesis, Electrical Engineering Program, "Measurement of Dynamic Weld Pool Surface in gas Metal Arc Welding Process", Thesis Director: Dr. Yu-Ming Zhang, Defense: February 2012.

Mr. Mohamed F. Kenawey, MS Thesis, ME Program: Thesis Director: Dr. K. Saito, Non-destructive Evaluation Technique for Stay Cable Bridges Using Infrared Thermography" Project Defense, April 2012.

Mr. Senthil Kumar Sankaralingam, MS Project Option, "A Design of an Experimental Setup to Measure Near-Field Radiative Heat Flux Between two Parallel Plane Surfaces,", Director: Dr. Pinar Menguc, Project Defense, July 2011.

Mr. Jae-Hyuk Oh, PhD Thesis, Physics Program, Thesis Director, Dr. S.R. Das, "Gauge-Gravity Duality

and its Applications to Cosmology and Fluid Dynamics, Thesis Defense April 2011
Mr. Muchael Patton, Jr., MS Thesis, MSMSY-MGE Program, Thesis Director. Arlie Hall, "Developing a time and motion study for a lean healthcare environment," June 2011.
Mr. Franklin DiBartolomeo, MS Thesis, ME Program, Thesis Director. Dr. C. Trinkle, "High Speed Continuous Thermal Curing Microfabrication System,", December 2010.
Mr. Junwen Wang, PhD Thesis, EE Program, University of Kentucky; Thesis Director Dr. Jingshan Li, "Quality analysis in flexible manufacturing systems with batch productions, Thesis defense: April 2010.
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D.P. Sekulic, Heat Transfer and Fluid Flow in Communicating Channels Systems, *Invited Lecture at the **Carnegie Mellon University, Department of Mechanical Engineering*, Pittsburgh**, Pennsylvania, USA, 1990.

D.P. Sekulic, Entropy Generation as an Objective Function in Thermal Design - Cryogenic Application, ***Los Alamos National Laboratory Seminar***, Los Alamos, NM, USA, 1990.

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CLASS NOTES

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D.P. Sekulic, Applied Energy Conversion I - Equipment, Class Notes, MEEN 111, Marquette University, Department of Mechanical and Industrial Engineering, Fall 1995, 258 pgs.

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Engineering, Mechanical Engineering Department, Novi Sad, Yugoslavia, 1985, 850 pgs.

LANGUAGES

Fluent in English, as well as in Serbo-Croatian family of languages (including Serbian, Croatian, Bosnian and Montenegrin). Proficiency in German. Has a full command in reading several other Slavic languages: Slovenian, Macedonian and Russian.

MISCELLANEOUS

Hobbies: scuba diving, rowing [former multiple national champion of the Yugoslav Federation, a former member of the national YU rowing team]; skiing.
Marital status: married (two children).

The following marks in the text determine the Language of the article/presentation

NO MARK:	IN ENGLISH
SC:	IN SERBO-CROATIAN
G:	IN GERMAN
R:	IN RUSSIAN
C(M):	IN CHINESE (Mandarin)

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