

Curriculum Vitae



Personal information

Surname(s) / First name(s) **Ion TISEANU**

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Nationality Romanian

Date of birth

Gender Male

Work experience

Dates **1986 – present**

Occupation or position held Senior researcher at the National Institute for Laser, Plasma and Radiation Physics (INFLPR), Plasma Physics and Nuclear Fusion Laboratory, Scientific Director INFLPR (until 31.12.2020);

- Main activities and responsibilities
- Founder and head of the “X-ray Microtomography Laboratory” (<http://tomography.inflpr.ro>), constructed with the financial support of the European Union [I. Tiseanu and team, EFDA Fusion Newsletter, *3-D X-ray Microtomography at MEC Romania*, Vol. 2003/6]
 - Principal investigator at EURATOM EFDA Program tasks from 2000 to present. Main EFDA tasks: EFDA-IFMIF TW(2000-2006)-TTMI: Non-destructive analysis of fusion materials samples by microtomography; EFDA WP2009-2011-PWI, X-ray microbeam absorption/fluorescence method as a non-invasive solution for investigation of the erosion of W coatings on graphite/CFC; EFDA WP2009-2011-PWI, X-ray microtomography studies CFC samples for porosity network characterization, WPMAG 2014-2018 Quality Control Monitoring of DEMO Magnets (conductors, joints, strands) by fully 3D X-ray microtomography;
 - Principal investigator **FI6W-516514 – FUNMIG** (2005-2008) - European research project focusing on the radionuclide-host rock interactions providing a dominant barrier between radioactive waste and the biosphere
 - Principal investigator **FP7 FEMaS- 224752**, 2009-2011 Fusion Energy Materials Science – Coordination Action
 - Principal investigator in a number of national research projects

Name and address of employer National Institute for Laser, Plasma and Radiation Physics, Str. Atomistilor nr. 409, Măgurele

Type of business or sector Research and development

Dates **1984 – 1986**

Occupation or position held Nuclear Engineer at the Institute for Reactor Power Plants, Pitesti, Romania, Post-irradiation Analysis Laboratory

Main activities and responsibilities Responsible with gammascanning of irradiated nuclear fuel

Name and address of employer Institute for Reactor Power Plants, Pitesti, Romania

Type of business or sector Research and development

Dates **1995 – 1997**

Occupation or position held Guest scientist at the Forschungszentrum Karlsruhe, Institute for Reactor Safety, Karlsruhe, Germany

Main activities and responsibilities Principal investigator International Fusion Materials Irradiation Facility (IFMIF) project

Name and address of employer Institute for Reactor Safety, Karlsruhe, Germany

Type of business or sector Research and development

Dates **2001-2003**

Occupation or position held Scientific advisor at Uni-Hite System (UHS), Japan

Main activities and responsibilities In UHS I have participated at the development of a new image reconstruction method and device by oblique view cone beam tomography (OVCB-CT). Based on these innovations protected by two patents, tens of eucentric OVCB systems were sold to major Japanese companies: Japan Texus Instruments, Toshiba, Mitsubishi Electric, Kawasaki Electronics, Hitachi, Pioneer, Pentax, Mitsubishi Motors, Nissan, Sony, Fuji Electrics, Yazaki, Canon, Matsushita AVC, Matsushita Kotobuki, Senju Metalics.

Name and address of employer Uni-Hite System, Japan

Type of business or sector Research and development

Education and training

Dates **2001-2002**

Title of qualification awarded Certificate of completion

Principal subjects/occupational skills covered **Postdoc** : "Ultra-fast x-ray tomography for multi-phase flow interface dynamic studies"

Name and type of organisation providing education and training Institute of Advanced Industrial Science and Technology, Tsukuba, Japan

Dates **1997-1998**

Title of qualification awarded Certificate of completion

Principal subjects/occupational skills covered **Postdoc**: "High resolution Cone-Beam Tomography for Two-Phase Flow Diagnostics"

Name and type of organisation providing education and training The Technical University Karlsruhe, Germany

Dates **1990-1995**

Title of qualification awarded Certificate of completion

Principal subjects/occupational skills covered **PhD in Physics**: "Methods and devices for the characterization of the neutron field of fusion systems"

Additional information

Patents

1. *Eucentric type oblique view cone beam tomography and measurement method of 3D objects* (inventors: M. Misawa (25%), I. Tiseanu (25%), R. Hirashima (17%), N. Wakabayashi (17%), K. Koizumi (16%), No.2002-135870 (Japan), 2002/05/10);
2. *Image reconstruction method by the oblique view cone beam tomography* (inventors: M. Misawa (25%), I. Tiseanu (25%), R. Hirashima (17%), N. Wakabayashi (17%), K. Koizumi (16%), 2002-061071(Japan), 2003/03/06);
3. *X-Ray radiation method for dynamic measurement by the fast X-ray Computer Tomography* No.2000-147581, 2000/05/19 Japan (inventors: M. Misawa (50%), I. Tiseanu (50%));
4. *Oblique irradiation angle CT system* - United Kingdom Patent GB2387306, (inventors: M. Misawa (50%), I. Tiseanu (50%);
5. *Oblique view cone beam CT system*, (inventors: M. Misawa (50%), I. Tiseanu (50%)), Issued patent: US7139363 (Issue date 21 Nov 2006);

Publications

I am the author or coauthor of more than 120 journal articles and numerous conference papers, including the first paper on *Oblique View Cone Beam CT* [M. Misawa, I. Tiseanu, R. Hirashima, K. Koizumi, Y. Ikeda, *Oblique View Cone Beam Tomography for Inspection of Flat-Shape Objects*, *Key Engineering Materials*, Advances in Nondestructive Evaluation, Vol 270-273, (2004), pp 1135-1141]. More than 70 research papers are listed in ISI citation databases in subject areas as: material science, instrumentation, nuclear science technology, nuclear fusion engineering, physics, engineering;

Selected papers on X-ray microtomographyµbeam fluorescence

1. Tiseanu Ion, Muzzi Luigi et al., Multi-scale 3D modelling of a DEMO prototype cable from strand to full-size conductor based on X-ray tomography and image analysis, *Fusion Engineering and Design*, Volume 146, Part A, September 2019, Pages 568-573
2. M. Lungu, C. Dobrea and I. Tiseanu, Enhanced XRF Methods for Investigating the Erosion-Resistant Functional Coatings, 9 (12), 847, (2019)
3. Tiseanu, I., Zani, L., Tiseanu, C.-S., Craciunescu, T., Dobrea, C., Accurate 3D modeling of Cable in Conduit Conductor type superconductors by X-ray microtomography, (2015) *Fusion Engineering and Design*, 98-99, pp. 1176-1180;
4. Tiseanu, I., Zani, L., Craciunescu, T., Cotorobai, F., Dobrea, C., Sima, A., Characterization of superconducting wires and cables by X-ray micro-tomography, (2013) *Fusion Engineering and Design*, 88 (9-10), pp. 1613-1618;
5. Galatanu, M., Popescu, B., Enculescu, M., Tiseanu, I., Craciunescu, T., Galatanu, A., Direct sintering of SiC-W composites with enhanced thermal conductivity, (2013) *Fusion Engineering and Design*, 88 (9-10), pp. 2598-2602;
6. Craciunescu, T., Murari, A., Tiseanu, I., Vega, J., Phase congruency image classification for marfe detection on jet with a carbon wall, (2012) *Fusion Science and Technology*, 62 (2), pp. 339-346;
7. Tiseanu, I., Mayer, M., Craciunescu, T., Hakola, A., Koivuranta, S., Likonen, J., Ruset, C., Dobrea, C., *X-ray microbeam transmission/fluorescence method for non-destructive characterization of tungsten coated carbon materials* (2011) *Surface and Coatings Technology*, 205 (SUPPL. 2), pp. S192-S197;
8. Tiseanu, I., Tsitrone, E., Kreter, A., Craciunescu, T., Loarer, T., Pegourie, B., Dittmar, T., *X-ray micro-tomography studies on carbon based composite materials for porosity network characterization*(2011) *Fusion Engineering and Design*, 86 (9-11) pp. 1646-1651;
9. Tiseanu, I., Craciunescu, T., Pegourier, B., Maier, H., Ruset, C., Mayer, M., Dobrea, C., Sima, A., *Advanced x-ray imaging of metal-coated/impregnated plasma-facing composite materials*, *Phys. Scr. T144* (2011), in print, online at stacks.iop.org/PhysScr/T144/000000;
10. Dobrea, C., Tiseanu, I., Craciunescu, T., Grigore, E. *Nondestructive analysis of large area metallic coatings of fusion materials*, (2011) *Romanian Journal in Physics*, 56 (SUPPL.), pp. 69-73;
11. Sauerwein C., Haemmerle V., Tiseanu I., Williams L., Gaspers R., CERN, *Mobile CT-System for In-Situ Inspection in the LHC at CERN*, 10th European Conference on Non-Destructive Testing, Moscow 2010, June 7-11;
12. Caspers, FHaemmerle, V, Sauerwein, C, Tiseanu, I, Williams, LR, *Mobile CT-System for IN-SITU inspection in the LHC at CERN*, Preprint CERN-ATS-2010-194;
13. Tiseanu, I., Craciunescu, T., Möslang, A., *Assessment of X-ray tomography for irradiated IFMIF/HFTM RIG*, (2009) *Fusion Engineering and Design*, 84 (7-11), pp. 1847-1851;
14. Tiseanu, I., Craciunescu, T., Petrisor, T., Corte, A.D., *3D X-ray micro-tomography for modeling of NB3SN multifilamentary superconducting wires*, (2007) *Fusion Engineering and Design*, 82 (5-14), pp. 1447-1453;
15. I. Tiseanu, T. Craciunescu, P. Badica, G.V. Aldica, M. Rindfleisch, *Characterization of Superconducting Wires by Cone-Beam Micro-Tomography*, IEEE Nuclear Science Symposium and Medical Imaging Conference (2008 NSS/MIC), Vols 1-9 Pages: 5513-5516;
16. I. Tiseanu, T. Craciunescu, G. V. Aldica, M. Iovea. *X-ray micro-tomography as a tool for quantitative characterization of advanced materials manufacturing processes*, *Advanced Materials Research*, 47-50, pp. 698-701, 2008;
17. Tiseanu, I., Craciunescu, T., Mandache, B.N., *Non-destructive analysis of miniaturized fusion materials samples and irradiation capsules by X-ray micro-tomography* (2005) *Fusion Engineering and Design*, 75-79 (SUPPL.), pp. 1055-1059;