ALLEGATO B

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Alfio Torrisi
CURRICULUM VITAE

INFORMAZIONI PERSONALI

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EDUCATION:

04/09/2014 - 10/04/2017: **Ph.D. in technical sciences**, in the discipline of Electronics, specialty in Optoelectronics at the Institute of Optoelectronics, Military University of Technology (IOE - MUT), Warsaw, Poland, Joint Agreement with Czech Technical University in Prague (CTU) under the EXTATIC (Extreme-ultraviolet and X-ray Training in Advanced Technologies for Interdisciplinary Cooperation) ERASMUS MUNDUS PROGRAMME.

Title of the Thesis: "*SXR and EUV nanoscale imaging using compact laser plasma light sources and Fresnel optics*".

01/07/2013 - 16/10/2014: **Professional Master's Programme** from Dept. of hygiene and public health, University of Catania, Italy. Master title: "Environmental Monitoring and mutagenic, carcinogenic and teratogenic risk assessment".

Title of the Project: "*Monitoring and evaluation of greenhouse gases and heavy metals in the industrial pole of Priolo (SR, Italy)".*

01/10/2009 - 27/03/2013: **M.Sc. in Applied Physics** from Department of Physics and Astronomy, University of Catania, Italy.

Thesis: "*Characterization and Analysis of Artistic-Cultural artifacts for theirs provenance and dating*".

15/07/2009 - 01/10/2002: **B.Sc. in Physics** from Department of Physics and Astronomy, University of Catania, Italy.

Thesis: "*Laser ablation and mass spectrometry (LAMQS) for application in the field of Cultural Heritage*".

SCIENTIFIC CAREER:

01/08/2019 – Up to now:

INFN associated, Section of Catania Group. V, on the Carbon-Based Innovative Materials for Nuclear Physics Applications (CIMA) project, under the supervision of Dr. M. De Napoli

28/03/2018 – Up to now:

Postdoc Researcher at Ústav jaderné fyziky AV ČR - Nuclear Physics Institute of the Czech Academy of Sciences, Řež, Hlavní Město, Czech Republic

- Material Science
- Nanoparticle productions and characterizations by laser ablation
- Plasma produced by Laser-target and by Particle beams-target interactions
- Characterization of SiC detectors
- Cultural heritage investigations
- Spectrophotometric measurements in the UV-VIS IR range
- Experimental measurements of PIXE and RBS at the NPI-Tandetron laboratory of the CANAM infrastructure.

04/09/2017- 16/03/2018:

UCL University College of London, Dept. of Medical Physics & Biomedical Engineering, London, United Kingdom.

- Appointed at Grade 7 as Research Associate at the AXIm (Advances X-ray Imaging) group for X-ray Phase Contrast Imaging experiments.
- Development of a micrometric phase-contrast microscope equipment investigating oesophageal human tumors.

01/06 – 31/08/2017:

CNR-IOM (Italian National Research Council - Istituto Officina dei Materiali), TASC laboratory, Area di Ricerca Elettra sychrotron, Basovizza (Trieste), Italy.

- Scientific consultant for the project entitled: "*Feasibility and design of a table-top source in the XUV, based on gaseous plasma induced by IR laser radiation*".

2014-2017 (PhD) – up to now (Continuous collaboration):

Military University of Technology (MUT), Institute of Optoelectronics, Laser Matter Interaction Laboratories (LMI), Warsaw, Poland.

- Quasi-monochromatic, compact, table-top extreme ultraviolet (EUV) microscope, at 13.8nm wavelength: optimization and characterization.
- High resolution imaging using EUV radiation and diffractive optics with sub-50nm spatial resolution.
- Investigations of influence of object thickness and source emission bandwidth on spatial resolution in EUV microscopy based on Fresnel zone plates.

- Soft X-ray (SXR) microscopy in the “water window” spectral range using a ns laser plasma SXR source based on a double stream nitrogen/helium gas-puff target and Fresnel zone plate optics with spatial resolution of 60nm.

- Development of a method based on Signal-to-Noise (SNR) measurements for optimization and characterization of SXR microscopy images and for characterization and benchmarking of various SXR imaging systems.

- Optical simulation of EUV optics.

- Characterization of laser-plasma sources employing Silicon and Silicon Carbide detectors.

- Tomography experiments

- NEXAFS spectroscopy

2015-2016:

Czech Technical University (CTU), Faculty of Nuclear Science and Physical Engineering, Prague, Czech Republic.

- Capillary discharge microscopy: setup preparation and preliminary images acquisition.

*Czech Technical University (CTU), Faculty of Biomedical Engineering, Kladno, Czech Repub*lic.

- Preparation of Biological samples for SXR/EUV imaging.

20/01/2014 – 30/04/2014:

Internship at the *Italian Consortium Environmental Protection (Consorzio Italiano Protezione Ambiente, CIPA, Ex S.S.114 Km. 139 c.p. 102 96010 Priolo (SR), Italy).*

- Monitoring of environmental pollution by Radio acoustic sounding system (RASS) and Sound detection and raging (SODAR).
- Detection of chemical compounds emitted to the ground and study of the relative atmospheric parameters.
- SKYNET simulation - predictive models of the pollutants distribution.

2012-2013:

University Internship

Laser-Plasma Physics Laboratory, Dept. of Physics and Earth Sciences, University of Messina, Messina, Italy.

- Laser Analysis employing a Nd:YAG laser coupled with Mass Quadrupole Spectrometry (LAMQS).
- Analysis of Characteristic X-Ray using compact X-ray Fluorescence instrumentation (XRF).
- Optical microscopy and Scan Electron Miscroscope (SEM) samples observation.

2011-2013:

University Internship:

PH3DRA Laboratory (PHysics for Dating Diagnostic Dosimetry Research and Applications), Dept. of

Physics and Astronomy, University of Catania, Catania, Italy.

- Characterization measurements using Raman, XRF and Colorimetry technique.
- Advanced study of Scan Electron Microscope (SEM).

PRACTICES, STUDIES, EXCHANGE and EXPERIMENTS ABROAD:

2015: Joint experiment employing a capillary Discharge and Imaging Applications – Czech Technical University, CTU (Prague) (6 months).

16/02–1/03/2013:

Intensive Erasmus Program Certificate "Safe Applications of Radiation and Radionuclides – SARA 2014" (2 weeks) in Belgium - Cooperation in Higher Education on Radiological and Nuclear Engineering (CHERNE) Network.

Project coordinators: University CVUT (Prague), SCK-CEN (Belgian Nuclear Research Centre, Mol, Belgium), JRC-IMM (Joint Research Centre Institute for Reference Materials and Measurements, Geel - Belgium), Hasselt University (Diepenbeek - Belgium).

UNIVERSITY PROFESSIONAL ACTIVITIES:

- Organizer member and co-operator for the development of the web platform of the PPLA2017 (Plasma Physics by Laser Application 2017) conference, held at Messina University (Italy), 5-7 July 2017.
- Organizer member of the ALPS workshop (I workshop on Application of Laser-Plasma X-ray and EUV sources) workshop held at the Institute of Optoelectronics, MUT, in Warsaw (Poland) 6-9 July 2015.
- Organizer member of the EXTATIC workshop (Extreme-ultraviolet and X-ray Training in Advanced Technologies for Interdisciplinary Cooperation) held at the Institute of Optoelectronics, MUT, in Warsaw (Poland) 20-24 October 2015.

PROJECTS:

1. 19-02804S (GAČR) 2019-2021: *"Nanostructured heteroprocesses for chemiresistors".* Co-investigator.
2. 18-07619S (GAČR) 2018-2020: *"Janus nanoparticles for catalysis and membrane processes".* Co-investigator.
3. P108/12/G108 (GAČR Center of Excellence) 2012-2018: *"Preparation, modification and characterization of materials by radiation"* (Czech Academy of Sciences, June-December 2018). Co-investigator.
4. EPSRC (Engineering and Physical Science Research Council), Grant N. EP/P023231/1 entitled "*Improving the outcomes of oesophageal interventions through novel x-ray based imaging methods*", 42 months, 2017, 2021 (co-investigator, September 2017 – March 2018). Principal Investigator: Prof. A. Olivo, UCL.
   http://gow.epsrc.ac.uk/NGBOViewGrant.aspx?GrantRef=EP/P023231/1
   http://gtr.rcuk.ac.uk/projects?ref=EP%2FP023231%2F1
5. Erasmus Mundus PhD Programme, 501-125/AT, entitled "*EXTATIC, X-ray and EUV nanoscale imaging using compact laser plasma light sources and Fresnel optics* ", 36 months, (executor as PhD candidate, 2014-2017). http://www.extatic.eu/. Supervisor: Prof. P.W. Wachulak, WAT, Warsaw (Poland); Co-supervisor: Prof. L. Pina, CTU, Prague (Czech Republic).

6. National Centre for Science Project entitled *""Water window" radiation for nanoimaging of biological objects and three-dimensional electron density reconstruction in bioengineering and material science applications*", funding received, number UMO-2015/17/B/ST7/03718, (Opus 9), 36 months, 2015-2017 (co-investigator). Principal Investigator: Prof. P. W. Wachulak, WAT, Warsaw (Poland).

7. National Centre for Research and Development (Narodowe Centrum Badań i Rozwoju) project in the frame of LIDER, 4th edition programme, entitled "Extreme ultraviolet (EUV) Microscope with nanometer spatial resolution for applications in modern science and technology", award number LIDER/004/410/L-4/12/NCBR/2013, 36 months, 2013-2016 (co-investigator 2014-2016). Principal Investigator: Prof. P. W. Wachulak, WAT, Warsaw (Poland).
http://www.ztl.wat.edu.pl/zoplzm/lider/.

8. Grant agreement number 654148, European Union's Horizon 2020 research and innovation program, "*LASERLAB-EUROPE IV– The Integrated Initiative of European Laser Research Infrastructures*", 36 months, EU Framework Programme, 2015-2017 (co-investigator). Principal Investigator: Prof. P. W. Wachulak, WAT, Warsaw (Poland).

9. National Centre for Science Project entitled "*Microscopy in the extreme ultraviolet (EUV) and soft X-ray (SXR) region*", award number DEC-2011/03/D/ST2/00296 (Sonata), 36 months (project leader), 2012-2015 (co-investigator, 2014-2015). Principal Investigator: Prof. P. W. Wachulak, WAT, Warsaw (Poland).

10. Grant agreement number 284464, PRUE 31-089, European Union, "*LASERLAB-EUROPE III– The Integrated Initiative of European Laser Research Infrastructures III*", 36 months, EU Framework Programme, 2012-2015 (co-investigator, 2014-2015). Principal Investigator: Prof. P. W. Wachulak, WAT, Warsaw (Poland).

CERTIFICATIONS:

- SARA 2014 (Safe Applications of RAdiation and radionuclides), Hasselt University (Belgium), February 2014.
- Training Course for Radiation Protection, Instituto Nazionale di Fisica Nucleare (National Nuclear Physics Institute), INFN, Catania (Italy), November 2013.
- Cambridge English Certificate (B1 Level) – License Number: 0041673866, Oxford University, September 2013.

AWARDS:

1. Travel Grant to attend at TriesteNext 2013, European Exhibition of Scientific Research, September 2013, 27-29 September 2013, Trieste, Italy.

2. 250 € travel grant from the European Microscopy Society to attend the Multinational Congress on Microscopy (MCM 2015), August 23-28, 2015, Eger, Hungary.

3. Best Poster Presentation Award at SNAIA 2018 (Smart Nanomaterial Advances, Innovations and Applications 2018), Paris, 10-13 Dec. 2018. Certificate + £ 50,00 prize from the Royal Academy of Chemistry

PROFESSIONAL SOCIETIES:

- SIF (Società Italiana di Fisica, Italian Physics Society) from 2010.
- Polish Society of Microscopy from 2015.
- European Microscopy Society from 2015.

METRICS *(Updated at 03/098/2020)*

GOOGLE SCHOLAR: 100 publications, 388 citations, h-index 10
SCOPUS: 93 publications, 337 citations, h-index 9
WEB OF SCIENCES: 89 publications, 307 citations, h-index 9

PUBLICATIONS in REFEREED JOURNALS:

1. A. Torrisi, P. Horák, J. Vacík, A. Cannavò, G. Ceccio, J. Vaniš, R. Yatskiv, J. Grym, "Multilayered Cu-Ti deposition on silicon substrates for chemiresistor applications", Phosphorus, Sulfur, and Silicon and the Related Elements, In Press, DOI: 10.1080/10426507.2020.1804166

2. M. Cutroneo, V. Havranek , A. Torrisi , A. Mackova, P. Malinsky, P. Slepicka, Z. Sofer and L. Torrisi "Polydimethylsiloxane-graphene oxide composite improving performance by ion beam irradiation", Surface and Interface Analysis, In Press, DOI: 10.1002/sia.6882

3. L. Torrisi, M. Cutroneo, A. Torrisi, "X-Rays emission by high intensity pulsed lasers irradiating thin foils at PALS laboratory", Contributions to Plasma Physics, In Press, DOI: 10.1002/ctpp.202000089

4. L. Torrisi, A. Torrisi, M. Cutroneo "Laser-generated ns plasma pulses characterized using SiC Schottky diode", Contributions to Plasma Physics **60** (7), (2020). DOI: 10.1002/ctpp.202000012

5. L. Torrisi, A. Torrisi, "Ni, Ti, and NiTi laser ablation in vacuum and in water to deposit thin films or to generate nanoparticles in solution" – Contributions to Plasma Physics, Early view e202000070 (2020). DOI: 10.1002/ctpp.202000070

6. L. Torrisi, M. Davidkova, V. Havranek, M. Cutroneo, A. Torrisi, "Physical study of proton therapy at CANAM laboratory on medulloblastoma cell lines DAOY", Rad. Eff. And Def. In Solids **1-16**, (2020). DOI: 10.1080/10420150.2020.1780592

7. L. Silipigni, G. Salvato, B. Fazio, G. Di Marco, E. Proverbio, M. Cutroneo, A. Torrisi and L. Torrisi, "Temperature and environment effects on the graphene oxide reduction via electrical conductivity studies", J. Mater. Sci. Mater, **1-8** (2020). DOI: 10.1007/s10854-020-03738-4

8. L. Torrisi, L. Silipigni, D. Manno, A. Serra, V. Nassisi, M. Cutroneo, A. Torrisi "Investigations on graphene oxide for ion beam dosimetry application", Vacuum **178**, 109451 (2020). DOI: 10.1016/j.vacuum.2020.109451

9. S. Bakardjieva, P. Horak, J. Vacik, A. Cannavò, V. Lavrentiev, A. Torrisi, A. Michalcova, R. Klie, X. Rui, L. Calcagno, J. Nemecek, G. Ceccio, "Effect of Ar^+ irradiation of Ti_3InC_2 at different ion beam fluences", Surface and Coatings Technology, **394,** 125834 (2020). DOI: 10.1016/j.surfcoat.2020.125834

10. A. Torrisi, P. Wachulak, H. Fiedorowicz and L. Torrisi, "Characterization of Si and SiC detectors for laser-generated plasma monitoring in short wavelength range", Journal of Instrumentation, **15** (05), C05027 (2020). DOI: 10.1088/1748-0221/15/05/C05027

11. L. Torrisi, M. Cutroneo and A. Torrisi, "Laser-generated Cu plasma in vacuum and in nitrogen gas", Vacuum, **178**, 109422 (2020). DOI: 10.1016/j.vacuum.2020.109422

12. L. Torrisi, M. Rosinski, D. Terwinska, P. Tchorz, M. Cutroneo and A. Torrisi, "Ion acceleration from aluminium plasma generated by fs laser in different conditions", Contributions to Plasma Physics, **60** (4), e201900187 (2020). DOI: 10.1002/ctpp.201900187

13. L. Torrisi, A. Torrisi, V. Havranek, I. Tomandl, L. Silipigni, "Ion, electron and laser beams for Cultural Heritage investigations by Czech-Italian collaboration", Journal of Instrumentation **15** (04), C04050 (2020). DOI: 10.1088/1748-0221/15/04/C04050

14. L. Torrisi, M. Rosinski, M. Cutroneo and A. Torrisi, "Target normal sheath acceleration by fs laser and advanced carbon foils with gold films and nanoparticles", Physics of Plasmas **27** 043107 (2020). DOI: 10.1063/5.0004834

15. L. Torrisi, M. Cutroneo, A. Torrisi, G. Di Marco, B. Fazio, L. Silipigni, "IR ns pulsed laser irradiation of Polydimethylsiloxane in vacuum", Vacuum **177** 109361 (2020). DOI: 10.1016/j.vacuum.2020.109361

16. L. Silipigni, G. Salvato, B. Fazio, G. Di Marco, E. Proverbio, M. Cutroneo, A. Torrisi, L. Torrisi "Temperature sensor based on IR-laser reduced graphene oxide", Journal of Instrumentation **15** (04), C04006 (2020). DOI: 10.1088/1748-0221/15/04/c04006

17. L. Torrisi, M. Rosinski, M. Cutroneo, A. Torrisi, J. Badziak, A. Zaras-Szydlowska, P. Parys, "Target normal sheath ion acceleration by fs laser irradiating metal/reduced graphene oxide targets", J. Instrum. **15** (03), C03056 (2020). DOI: 10.1088/1748-0221/15/03/c03056

18. A. Torrisi, M. Cutroneo, L. Torrisi and J. Vacik, "Biocompatible Nanoparticles production by pulsed Laser Ablation in Liquids", J. Instrum. **15** (03), C03053 (2020). DOI: 10.1088/1748-0221/15/03/c03053

19. M. Cutroneo, A. Torrisi, V. Ryukhtin, M. Dopita, L. Silipigni, A. Mackova, P. Malinsky, P. Slepicka, L. Torrisi "Polydimethylsiloxane containing gold nanoparticles for optical applications", J. Instrum. **15** (03), C03044 (2020). DOI: 10.1088/1748-0221/15/03/c03044

20. L. Torrisi, M. Cutroneo, A. Torrisi, G. Salvato, E. Proverbio, L. Silipigni, "Reduction of graphene oxide foils by IR laser irradiation in air", J. Instrum. **15** (03), C03006 (2020). DOI: 10.1088/1748-0221/15/03/c03006

21. M. Cutroneo, V. Havranek, A. Mackova, P. Malinsky, A. Torrisi, L. Silipigni, Z. Sofer, L. Torrisi, "Selective modification of electrical insulator material by ion micro beam for the fabrication of circuit elements", Radiat. Eff. Defects S. **175** (3-4), 307-317 (2020). DOI: 10.1080/10420150.2019.1701462

22. A. Torrisi, M. Cutroneo, V. Havranek, L. Torrisi, J. Vacík, "Linearity studies of HD-810 dosimeters by light ion beams", Radiat. Eff. Defects S., **175** (3-4), 383-393 (2020). DOI: 10.1080/10420150.2019.1701469

23. G. Ceccio, P. Horák, A. Cannavò, A. Torrisi, V. Hnatowicz, J. Vacík, "Distribution of Lithium in Doped Nuclear Pores of Polyethylene Terephthalate by Neutron Depth Profiling", Radiat. Eff. Defects S., **175** (3-4), 325-331 (2020). DOI: 10.1080/10420150.2019.1701464

24. L. Torrisi, V. Havranek, A. Torrisi, M. Cutroneo and L. Silipigni, "Laser and ion beams graphene oxide reduction for microelectronic devices", Radiat. Eff. Defects S., **175** (3-4), 226-240 (2020). DOI: 10.1080/10420150.2019.1701456

25. G. Ceccio, A. Cannavò, P. Horák, A. Torrisi, V.Hnatowicz, P. Apel, J. Vacík, "Lithium encapsulation in etched nuclear pores in polyethylene terephthalate", Nuclear Instruments and Methods B, **469** 15 (2020). DOI: 10.1016/j.nimb.2020.02.029

26. L. Torrisi and A. Torrisi, "Gold nanoparticles for physics and bio-medicine applications", Radiat. Eff. Defects S. **175** 1-2 (2020). DOI: 10.1080/10420150.2020.1718132

27. J. Vacík, P. Horák, S. Bakardjieva, V. Bejsovec, G. Ceccio, A. Cannavo, A. Torrisi, ,V. Lavrentiev and R. Klie, "Ion sputtering for preparation of thin MAX and MXene phases", Radiat. Eff. Defects S. **175** 1-2 (2020). DOI: 10.1080/10420150.2020.1718142

28. L. Torrisi, M. Cutroneo, A. Torrisi, L. Silipigni and V. Havranek, "Small-field dosimetry based on reduced graphene oxide under MeV helium beam irradiation", Radiat. Eff. Defects S. **175** 1-2 (2020). DOI: 10.1080/10420150.2020.1718137

29. M. Cutroneo, L. Torrisi, J. Badziak, M. Rosinsky, A. Torrisi, M. Fazio, Z. Sofer, R. Battger and S. Akhmadaliev, "Hybrid Graphene Based Material Promising Target in Laser Matter Interaction", J. Instrum. **15** (2020). DOI: 10.1088/1748-0221/15/01/C01021

30. L. Torrisi, L. Silipigni, A. Torrisi, M. Cutroneo, "Graphene oxide as a radiation sensitive material for XPS dosimetry", Vacuum **173**, 109175 (2020). DOI: 10.1016/j.vacuum.2020.109175

31. L. Torrisi, M. Cutroneo and A. Torrisi, "Protons and carbon ions acceleration in the target-normal-sheath-acceleration regime using low-contrast *fs* and metal-graphene targets", Contributions to Plasma Physics **60**, 1(2020). DOI: 10.1002/ctpp.201900076

32. R. Yatskiv, S. Tiagulskyi, J. Grym, J. Vanis, N. Basinova, P. Horak, A. Torrisi, G.Ceccio, J. Vacík, M. Vrňata, "Optical and electrical characterization of CuO/ZnO heterojunctions", Thin Solid Films **693**, 137656 (2020). DOI: 10.1016/j.tsf.2019.137656

33. L. Torrisi, V. Havranek, M. Cutroneo, A. Torrisi, "Gafchromic HD-V2 investigations using MeV ion beams in vacuum", Radiat. Eff. Defects S. **174** (11-12), 1063-1075 (2019). DOI: 10.1080/10420150.2019.1683845.

34. L. Torrisi, L. Silipigni, V. Havranek, M. Cutroneo, A. Torrisi, G. Salvato, "Reduced graphene oxide foils for ion stripping applications", Radiat. Eff. Defects S. **174**(11-12), 973-984 (2019). DOI: 10.1080/10420150.2019.1683836

35. L. Torrisi, S. Guglielmino, L. Silipigni, L.M. De Plano, L. Kovacik, V. Lavrentiev, A. Torrisi, M. Fazio, B. Fazio, and G. Di Marco, "Study of gold nanoparticles transport by M13-phages towards disease tissues as targeting procedure for radiotherapy applications", Gold Bulletin **52**, 135–144 (2019). DOI: 10.1007/s13404-019-00266-w

36. A. Cannavò, V. Havránek, M. Cutroneo, G. Ceccio, A. Torrisi, P. Horák, J. Vacík, L. Torrisi, "Spectroscopy of backscattered Cu ions detected by CR39 through grayness analysis of ion-etch tracks", Radiation Measurements **129**, 106204 (2019). DOI: 10.1016/j.radmeas.2019.106204

37. L. Torrisi, M. Cutroneo, A. Torrisi, M. Rosinski, A. Zaras-Szydlowska, P. Parys, "Investigation of the effect of plasma waves excitation on target normal sheath ion acceleration using fs laser-irradiating hydrogenated structures", Contributions to Plasma Physics e201900029 (2019). DOI: 10.1002/ctpp.201800127

38. M. Cutroneo, V. Havranek, P. Malinski, S. Mackova, A. Torrisi, J. Flaks, P. Slepicka, and L. Torrisi, "Micro ion beam used to optimize the quality of microstructures based on polydimethylsiloxane", Nuclear Instruments and Methods in Physics Research B **459**, 137-142 (2019). DOI: 10.1016/j.nimb.2019.08.033

39. L. Torrisi, V. Havranek, M. Cutroneo, A. Mackova, L. Silipigni and A. Torrisi, "Characterization of reduced Graphene oxide films used as stripper foils in a 3.0-Mv Tandetron", Radiation Physics and Chemistry **165**, 108397 (2019). DOI: 10.1016/j.radphyschem.2019.108397

40. L. Torrisi, N. Restuccia and A. Torrisi, "Study of gold nanoparticles for mammography diagnostic and radiotherapy improvements", Reports of Practical Oncology & Radiotherapy **24**(5), 450-457 (2019). DOI: 10.1016/j.rpor.2019.07.005

41. L. Torrisi, V. Venuti, V. Crupi, L. Silipigni, M. Cutroneo, G. Paladini, A. Torrisi, V. Havránek, A. Macková, M. F. La Russa, G. Birarda, L. Vaccari, A. Macchia, F. Khalilli, M. Ricca, D. Majolino, "RBS, PIXE, Ion-Microbeam and SR-FTIR Analyses of Pottery Fragments from Azerbaijan", Heritage, **2**(3), 1852-1873 (2019). DOI: 10.3390/heritage2030113

42. L. Torrisi, M. Cutroneo, L. Silipigni, M. Fazio, A. Torrisi, "Effects of the Laser Irradiation on Graphene Oxide Foils in Vacuum and Air", Physics of the Solid State **61**(7), 1327-1331 (2019). DOI: 10.1134/S106378341907028X

43. L. Silipigni, G. Salvato, G. Di Marco, B. Fazio, A. Torrisi, M. Cutroneo, L. Torrisi, "Band-like transport in high vacuum thermal reduced graphene oxide films", Vacuum **165**, 254-261 (2019). DOI: 10.1016/j.vacuum.2019.04.025

44. M. Cutroneo, L. Torrisi, V. Havranek, A. Mackova, P. Malinsky, A. Torrisi, L. Silipigni, S. Fernandes, Z. Sofer, J. Stammers, "Localized modification of graphene oxide properties by laser irradiation in vacuum", Vacuum **165**, 134-138 (2019). DOI: doi.org/10.1016/j.vacuum.2019.04.012

45. L. Torrisi, M. Cutroneo and A. Torrisi, "Tantalum ion acceleration in laser-generated plasma and dependence on the pulse duration", Contribution to Plasma Physics **59**(9), e201900043 (2019). DOI: 10.1002/ctpp.201900043

46. A. Torrisi, P. W. Wachulak, L. Torrisi and H. Fiedorowicz, "Monitoring of the plasma generated by a gas-puff target source", Physical Review Accelerator and Beams **22,** 052901 (2019). DOI: 10.1103/PhysRevAccelBeams.22.052901

47. M. Cutroneo, L. Torrisi, V. Havranek, A. Mackova, P. Malinsky, A. Torrisi, J. Stammers, Z. Sofer L. Silipigni, B. Fazio, M. Fazio and R. Böttgerg, "Characterization of graphene oxide film by implantation of low energy copper ions", Nuclear Instruments and Methods B **460**, 169-174 (2019). DOI: 10.1016/j.nimb.2019.03.021

48. P. W. Wachulak, A. Torrisi, W. Krauze, A. Bartnik, J. Kostecki, M. Maisano, A. M. Sciortino, H. Fiedorowicz, "A "water window" tomography based on a laser-plasma double-stream gas-puff target soft X-ray source", Applied Physics B **125** (5), 70 (2019). DOI: 10.1007/s0034

49. M. Cutroneo, V. Havranek, A. Mackova, P.Malinsky, L. Torrisi, L. Silipigni, B. Fazio, A. Torrisi, K. Szokolova, Z. Sofer, J. Stammers, "Effects of the ion bombardment on the structure and composition of GO and rGO foils", Materials Chemistry and Physics **232** (15), 272-277 (2019). DOI: 10.1016/j.matchemphys.2019.04.075

50. A. Torrisi, P.W. Wachulak, H. Fiedorowicz and L. Torrisi, "SiC detectors for evaluation of laser-plasma dynamics employing gas-puff targets", Nuclear Instruments and Methods A **922** 250-256 (2019). DOI: 10.1016/j.nima.2018.12.086

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CONFERENCE ABSTRACTS, TALKS and POSTER PRESENTATIONS:

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