

# Newsletter



February 2018

## AFLASER

Advanced fibre laser and coherent source as tools for society, manufacturing and lifescience

Dear Reader,

Welcome to our second COST Action Newsletter! We do hope that you will find useful information inside.

We already started the year 4 of our Action. During this year, the WG2 topical meeting has taken place in Vienna, Austria, from 8 to 9 February 2018. Moreover, ECI, WR as well as PhD and Master student have the possibility to participate in Winterschool Fiber Lasers & Optical Fiber Technology COST MP1401 – FLWS18, February 13 - 16, 2018 at Ecole Polytechnique Federale de Lausanne (EPFL) in Lausanne, Switzerland.

Starting from this Newsletter, you can read the stories of STSM. We start from Dr. Dragana Jovanović from Vinča Institute of Nuclear Science, University in Belgrade, Serbia.

We wish all of you – members of the COST Action MP1401 AFLASER successful and full of good results year.

Lidia Zur, Dissemination Manager & Stefano Taccheo, Action Chair

## JENA meeting

The 3<sup>rd</sup> Annual conference and 4<sup>th</sup> MC meeting has taken place in Jena, Germany, from 18 to 20 September 2017 at Leibniz Institute of Photonic Technology. We had 50 participants well balanced among students and senior researchers as well as in gender. 37 oral presentation were given. Worthy to note the Early Career Investigators & Women Researchers sessions, which presentations took almost half of the meeting time.

The meeting was co-sponsored by two companies: Heraeus Quarzglas GmbH and Laserline GmbH as well as a local funding agency, LEG Thüringen, Thüringer Cluster Management.



The participants of Jena meeting during the social event.

The companies as well as the funding agency are involved in different projects related to the topics of the Action MP1401. In particular the collaboration of the Leibniz IPHT with the Heraeus Quarzglas GmbH is based on a 25 years fruitful and successful cooperation.

During the meeting we took part in the social event, enjoying the beautiful and interesting Porcelain Worlds Leuchtenburg, in Seitenroda.

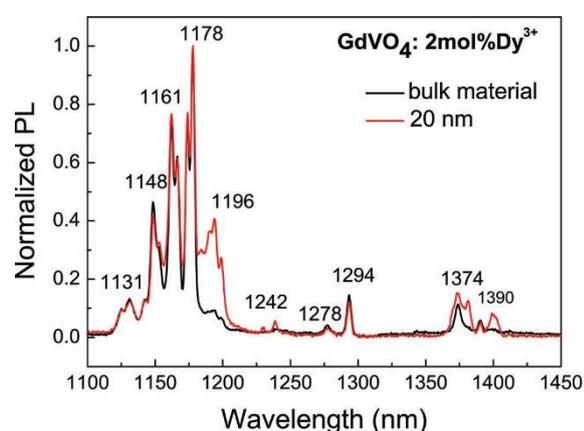
Kay Schuster

## STSM stories – part I

I am a senior researcher at Laboratory for Radiation Chemistry and Physics, Vinča Institute of Nuclear Science, University in Belgrade, Serbia. The STSM obtained from COST Action MP1401 gave me an excellent opportunity to visit Institute for Photonics and Nanotechnology of the National Research Council (IFN-CNR), headed by Maurizio Ferrari, in Trento and establish collaboration between these two institutions.

Through the STSM, I visited IFN-CNR in Trento during the three weeks period (6<sup>th</sup> – 28<sup>th</sup> September 2017). I worked with 10 samples of GdVO<sub>4</sub>:Dy<sup>3+</sup> and DyVO<sub>4</sub> nanoparticles of different sizes and morphologies prepared earlier in Vinča Institute by several different synthetic methods. The following measurements were successfully performed in IFN-CNR: Micro-Raman (100 – 3800 cm<sup>-1</sup>) and photoluminescence spectroscopies for emission in UV-Vis (350 – 650 nm) and NIR-IR (1150 – 1450 nm) regions, as well as quantum yield measurements (range: 250 – 800 nm).

Most of the research results are published in the paper “Synthesis, structure and spectroscopic properties of luminescent GdVO<sub>4</sub>:Dy<sup>3+</sup> and DyVO<sub>4</sub> particles” in *Optical Materials* **76** (2018) 308-316. Some of the results will be presented at “SPIE Photonics Europe 2018” in Strasbourg, France.



The NIR PL spectra of the bulk and 20nm-GdVO<sub>4</sub>:Dy<sup>3+</sup> under laser excitation.



A beautiful view from the office at IFN-CNR in Trento.

Experimental experience, and the obtained results in this STSM could serve as a starting point for a future research project proposal involving IFN-CNR in Trento, Italy, and Vinča Institute of Nuclear Science, University in Belgrade, Serbia. What remains is to continue work to design different cavities and waveguides embedding prepared nanoparticles of suitable size and to incorporate the nanoparticles in silica waveguides, opal and 1D photonic crystal for enhancement of 1.3 μm and 2.8 μm photoluminescence.

Dragana Jovanović

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