

Post-Doctoral researcher at IST wins John Dawson PhD prize

Marija Vranic, Post-Doctoral researcher at GoLP/IPFN, Instituto Superior Técnico has been awarded the John Dawson Thesis prize for her PhD thesis *Extreme laser-matter interactions: multi-scale PIC modelling from the classical to the QED perspective*. The John Dawson Thesis prize is awarded on a biennial basis for the best PhD thesis in the area of compact plasma based accelerators driven by ultra-intense laser pulses.

The prize was awarded at the *Laser and Plasma Accelerators Workshop* held at Jeju Island in South Korea from August 27 September 1. The prize is named after John Dawson, one of the pioneers of computational physics and the founder of the field of plasma-based particle acceleration. He worked and lived in Los Angeles.

What do stars, fire, and lightning have in common? They are all plasmas. In her PhD thesis, Marija studies such plasmas using some of the most powerful computers in the world. Her research is focused on laser interaction with matter at extreme intensities. In the presence of these laser fields, matter is ionized, becoming a plasma, and its electrons oscillate with such an acceleration that quantum processes become critical to understanding the dynamics of the system.

Marija unveiled the algorithms that make such simulations possible both in the classical and quantum regimes, opening the way to optimising these scenarios to accelerate electrons or to emit X-rays and gamma-rays.

Marija Vranic is a Serbian researcher, originally from Belgrade, now working at IST. She obtained her undergraduate physics degree in Belgrade and moved to Portugal to do her PhD in Physics at IST in the group of Luis O. Silva. After her PhD, she also worked for the Extreme Light Infrastructure in Prague, Czech Republic. Marija is currently an FCT Post-Doctoral fellow at IST, Lisbon.



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