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Optica Foundation 20th Anniversary Challenge

ICFO postdoc Michela Picardi wins one of ten awards to i¿½U e photonics. Find a solution. Change the world.i¿½

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Scientific and engineering advancements from the global optics and photonics community shape our world, but these achievements require financial investments to explore their merit and bring them to market. The Optica Foundation launched its **20th Anniversary Challenge** to address this need, draw out novel ideas from early-career professionals, and provide the seed money to investigate impactful hypotheses in the **areas of environment, health, and information**. Awardees receive funding to explore their ideas and take steps toward addressing critical global issues.

The Optica Foundation has announced that **Dr Michela Florinda Picardi**, a postdoctoral researcher in the **Thermal Photonics research group** led by ICFO Prof. Dr Georgia Papadakis, is one of ten finalists, chosen from nearly 100 applications from around the globe, for the project THUNDER - THermal UNpolarized radiation Design for Energy Recycling.

The mission of project THUNDER is to design thermal emitters to harvest the power of thermal radiation. The aim is to do so exploiting intrinsic properties of light at the nanoscale, such as chirality or reactive power, to achieve tailored thermal radiation that is, for example, directional, monochromatic or possesses a high degree of polarization. The heat generated by hot bodies, in the form of thermal radiation, can be converted into electricity through thermophotovoltaic devices. Furthermore, cleverly engineered thermal emission can be exploited in refrigeration devices via a mechanism called radiative cooling.

Alan Willner, chair of the 20th Anniversary Challenge Selection Committee and an Optica past president commented, i¿½The selection committee is inspired by the outstanding quality of the awardees who truly represent the finest aspects of our membership. The winning proposals demonstrate superior creative ingenuity, applying photonics in novel ways to work toward solutions for a wide berth of society's most critical challenges. The award money will help provide recipients with an opportunity to explore their innovative ideas and benefit the larger good in the process.i¿

? Enormously pleased with the award, Dr Picardi commented, i¿½m working in an area that I am passionate about, trying to make use of photonics to avert climate change. The fact that the Optica Foundation has used the opportunity of their 20th Anniversary to fund

Early-Career-Professionals like myself, working on critical global issues, is hugely motivating.i¿½ In addition she noted, i¿½Devices based on thermal emission are becoming the state-of-the-art for energy conversion right in front of our eyes. Recent scientific advances are showing us the possibility for the waste heat generated in industrial processes to be exploited as an abundant energy resource. Not only this is a great career opportunity for me, I aim for results that can define a novel paradigm in the way we utilize our energy resources.i¿½

Congratulations Michela and to all of the awardees of this 20th Anniversary Award. We wil be following the results of this important work!

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Illustration of concept for THUNDER