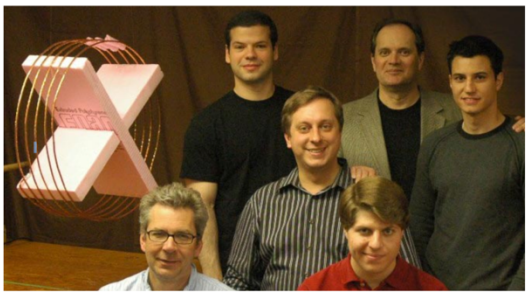
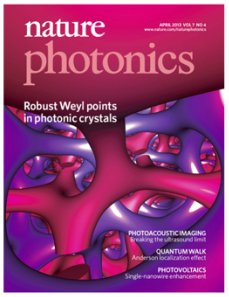

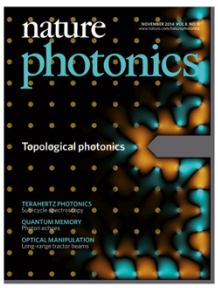

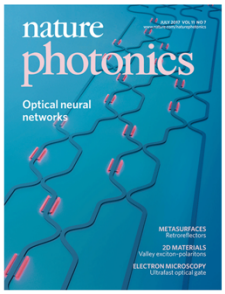

MIT Photonics and Quantum optics Internship Offer – Spring and Summer 2022
Principal Investigator: Marin Soljačić
Direct supervisor: Charles Roques-Carmes

The Modern Photonics and Electromagnetics group at MIT, led by Professor Marin Soljačić is looking for research interns for the Spring 2022.

We are looking for students with exceptional talent in fundamental physics, with an interest in solving some of the most exciting problems at the intersection of nanophotonics, light-matter interaction, and quantum optics. The selected interns would work in our laboratories at MIT in Boston (USA) and join teams working on our current experimental and theoretical endeavors. We except students with a high level of responsibility, technical skills, and curiosity to tackle those complex problems.

Possible projects include:
— Experimentally realizing macroscopic quantum states of light with sub-Poissonian statistics
— Developing novel X-ray detectors based on nanophotonic scintillators
— Generating pure random numbers from the quantum vacuum and developing novel computing schemes leveraging quantum fluctuations
— Developing novel nonlinear optics schemes to generate high-power THz sources

The Soljačić group has a long history of successful interns working on existing or new projects, and coming from various institutions (MIT, Ecole Polytechnique, Imperial College, etc.). It is our top priority to have you work in a positive environment where you will be given the means to achieve the goals of your internship. You will be fully integrated into existing research teams. We are expecting students to come for at least an entire semester, but will consider applications from all applicants, regardless of the duration of their internship.

If you are interested, please reach out directly to Charles Roques-Carmes (chrc@mit.edu) with a copy of your resume and a short paragraph describing your general research interests.

Candidates will be interviewed over Zoom and are expected to start at the earliest date.

Relevant publications:
[1] A general framework for scintillation in nanophotonics, Roques-Carmes*, Rivera*, et al., *arXiv:2110.11492*
[2] The Fock-State Laser: Macroscopic Quantum States of Light Based on Deep Strong Light-Matter Coupling, Rivera et al., *CLEO:2021*
[3] Accelerating recurrent Ising machines in photonic integrated circuits, Prabhu*, Roques-Carmes*, Shen*, *Optica*, 2020
[4] Heuristic recurrent algorithms for photonic Ising machines, Roques-Carmes et al., *Nature communications*, 2020
[5] Overcoming the Manley-Rowe Limit for CW Terahertz Generation in Q-Engineered Multimodal Cavity, Salamin et al., *CLEO:2021*