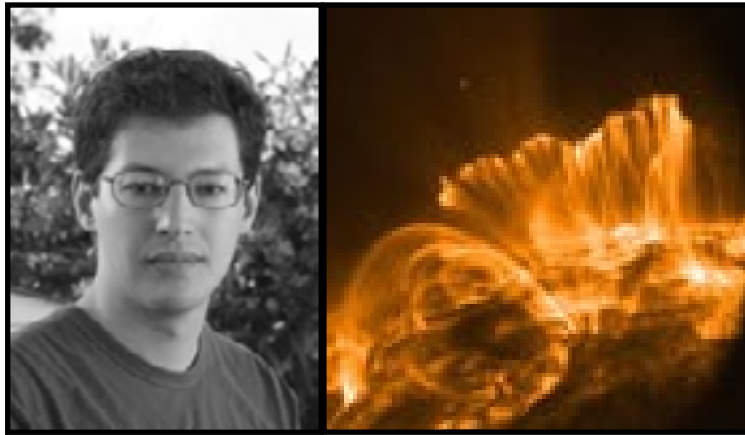


Department of Physics Colloquium



Anatoly Spitkovsky

Princeton University

Particle Acceleration & Magnetic Field Generation in Astrophysical Plasmas

Shocks in low density plasmas (so-called “collisionless shocks”) are ubiquitous throughout the Universe, and are thought to be responsible for the generation of nonthermal particles that extend over decades in energy. I will describe the progress in modeling collisionless shock structure and particle acceleration using ab-initio kinetic simulations, focusing on the current understanding of magnetic field amplification mechanisms, the conditions necessary for particle injection into the acceleration process, and the physics behind the electron-to-ion ratio in shock acceleration. I will also describe a new scenario for generation of the first magnetic fields during structure formation that can be important for seeding magnetic fields in galaxies.



WISCONSIN

Friday, October 16, 2015

3:30 pm | 2241 Chamberlin Hall

Coffee & Cookies at 3:15 pm