

Random Lasers

Hui Cao

Department of Applied Physics, Yale University, New Haven, CT, 06520, USA

**E-mail: hui.cao@yale.edu*

Unlike conventional lasers relying on mirrors or periodic structures to trap light, random lasers utilize multiple scattering in disordered gain media for optical confinement and feedback. They have been realized in many material systems, including powders, colloids, biological tissues, polycrystalline films, polymers, optical fibers, and cold atomic vapors. The lasing frequencies range from ultraviolet and visible to infrared and Tera-Hertz. This section will cover some applications of random lasers. Over the past three decades there have been extensive experimental and theoretical studies on random lasers. I will review the history of random laser development and introduce the lasing mechanism. I will also discuss the applications that benefit from the unique characteristic of random lasers.

