Random Raman Laser

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Random medium provides a unique feedback mechanism through light scattering while Raman transitions facilitate the universal method for optical gain in a large variety of materials ranging from diamonds to fertilizers. We have recently demonstrated extremely efficient random Raman lasing in a disordered 3D system and applied for remote chemical sensing at kilometer distances. I will discuss our advances in both the fundamental understanding of nonlinear optical interactions in disordered media and applications of developed methodology for remote chemical sensing and deep-tissue biomedical optical imaging.