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Team Optical Imaging in Biological and Complex Media

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Since 2014, Sylvain Gigan is full professor at Sorbonne Université, and group leader in Laboratoire Kastler-Brossel, at Ecole Normale Supérieure (ENS, Paris). His research interests range from fundamental investigations of light propagation in complex media, biomedical imaging, sensing, signal processing, to quantum optics and quantum informations in complex media.

S1-L2 ‘Imaging at depth with wavefront shaping: focusing and beyond.’

Imaging in complex media with light is ultimately limited by the exponential attenuation of ballistic light. Nonetheless, scattered light penetrates much deeper and gives rise to speckle patterns, that have micrometer scale features and can carry information. I will describe the work of the team on focusing light deep into tissues using wavefront shaping tools, exploiting linear and non-linear fluorescence feedback. I will also describe our recent effort towards retrieving deeply buried fluorescence signals from functional activity
