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Stochastic super resolution imaging by diffusive probes THOMAS DORN, JOHN EWALT, FRANCISCO MARQUEZ, GEORGE SHUBEITA, UT-Austin, Physics — Optical microscopy is a powerful tool for the imaging of cells and bio-materials, however the resolution is limited by diffraction and thus objects closer than a few hundred nanometers cannot be individually resolved. We report a novel stochastic super-resolution technique which relies on diffusing probes in which the resolution is determined by probe size and Forster radius of energy transfer. By recording a time-series of images similar to other super-resolution techniques, the centers of bright spots can be determined with sub-pixel accuracy by fitting to the point spread function. The centroids can then be used to reconstruct a super-resolution image.

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