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Anthracene Crystals Doped with Dibenzoterrylene Molecules in Optical Fibre Microcavities K.D. MAJOR, E.A. HINDS, ALEX S. CLARK, C. POLLISENI, S. GRANDI, Y.H. LIEN, Imperial College London, QUANTUM NANOPHOTONICS, CENTRE FOR COLD MATTER, QUANTUM OPTICS AND LASER SCIENCE GROUP TEAM — Dibenzoterrylene molecules placed in an anthracene crystal are stable emitters resistant to photobleaching and with a high quantum efficiency and low phonon coupling. Placing dibenzoterrylene doped anthracene crystals within a optical fibre microcavity can lead to enhanced emission of radiation into the modes of the optical cavity. The optical fibre microcavities are already coupled to a optical fibres and by selecting the correct cavity mirror reflectivities, the emission can be preferentially directed down the optical fibres. Excitation of the dibenzoterrylene molecules leads to the emission of single photons and can then be used as a micron-scale fibre coupled single photon source.

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