effects play an important role from the very beginning of the emission, which is triggered by the first photon spontaneously emitted along the pencil[12].

The study reported by Scheibner *et al.*[2] is made possible by the ability to grow quantum dots with such a high density that there are many dots within a diameter of an optical wavelength, and then to etch away most of the surrounding dots and thereby destroy their cooperation. The authors show that the photoluminescent lifetime of a closely spaced ensemble of quantum dots — each between 6–10 nm in diameter and separated by an average distance of around 35 nm — grown in this way is measurably different depending on whether it is excited by laser light at or away from the resonant wavelength of the constituent quantum dots. Moreover, they show that when all of the quantum dots outside a 60 nm × 60 nm mesa are removed by etching them away, the resonant photoluminescent lifetime of the ensemble returns to that of the non-resonant lifetime. Such behaviour is unlikely to be explained by artefactual effects, such as an increased rate of surface recombination as a result of etching, as most such effects are expected to shorten rather than lengthen the luminescent lifetime of the authors' samples as they decreased the size of the mesa being studied (thereby reducing the number of dots able to cooperate). It is reasonable to conclude that the difference observed between the resonant and non-resonant lifetime in the authors' unetched sample arises because the resonant laser light excites the faster-decaying superradiant mode, and that they indeed demonstrate the occurrence of collective, superradiant coupling of the quantum dots in the sample.

The superradiant effects Scheibner *et al.* report are modest — with resonant photoluminescent lifetime differing from the non-resonant by only a factor of 2/3 (presumably owing to the large inhomogenous broadening of their system). However, the steady progress in quantum dot growth on pre-patterned substrates suggests that this is just the beginning of a curious subfield of collective effects between quantum dots of various spatial configurations for tailoring their interaction and emission characteristics.

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ERRATUM

This Issue

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There are three incorrect page numbers in the print version of the This Issue page. The correct numbers are as follows:
"Linear resistivity explained" News & Views p809;
"Correlations strong and light" first Article p849;
"Quantum-dot onions" News & Views p807.