

FRACTAL MANIFESTATIONS
OF PERCOLATION-CLUSTER STRUCTURAL
ELEMENT IN EMISSION SPECTRA
OF SAMPLES WITH ZnSe QUANTUM DOTS

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S u m m a r y

Radiation by a percolation cluster of quantum dots has been detected for the first time, while studying dielectric specimens with ZnSe quantum dots, the concentration of which is both lower and higher than the corresponding percolation threshold. Different structural elements of the percolation cluster, such as the cluster backbone, dangling ends, and internal voids, were found to form their own bands in the specimen emission spectra. The excitonic state energy of each structural element was found to be mainly governed by the influence of the nearest neighbor elements, the amounts of which in the cluster backbone and the dangling ends are different. As a result, the corresponding excitonic states are resolved by energy and can be observed experimentally.