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**Size dependent exciton g-factor in self-assembled InAs/InP quantum dots.** PAUL KOENRAAD, NIEK KLEEMANS, JOOST VAN BREE, MURAT BOZKURT, ANDREI SILOV, RICHARD NOTZEL, Eindhoven University of Technology, CRAIG PRYOR, MICHAEL FLATTE, University of Iowa — We have studied the size dependence of the exciton g-factor in self-assembled InAs/InP quantum dots. Photoluminescence measurements on a large ensemble of these dots indicate a multimodal height distribution. Cross-sectional Scanning Tunneling Microscopy measurements have been performed and support the interpretation of the macro photoluminescence spectra. More than 160 individual quantum dots have systematically been investigated by analyzing single dot magnetoluminescence between 1200nm and 1600 nm. We demonstrate a strong dependence of the exciton g-factor on the height and diameter of the quantum dots, which eventually gives rise to a sign change of the g-factor. The observed correlation between exciton g-factor and the size of the dots is in good agreement with calculations. The results demonstrate that quantum dots emitting at 1.55 micrometer and showing no Zeeman splitting (g-factor = 0) can be constructed. This makes these dots interesting for quantum information processing at optical telecommunication wavelengths.

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