We present measurements of the \( \beta \)-factor, describing the coupling efficiency of light emitted by single InAs/GaAs semiconductor quantum dots into a photonic crystal waveguide mode. The \( \beta \)-factor is evaluated by means of time resolved frequency-dependent photoluminescence spectroscopy. The emission wavelength of single quantum dots is temperature tuned across the band edge of a photonic crystal waveguide and the spontaneous emission rate is recorded. Decay rates up to 5.7 ns\(^{-1} \), corresponding to a Purcell factor of 5.2, are measured and \( \beta \)-factors up to 85% are extracted. These results prove the potential of photonic crystal waveguides in the realization of on-chip single-photon sources.

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