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Measurement of the D -> pi- e+ nu partial branching fraction, form factor and implications for Vub.

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Precision measurements of the D -> pi e+ nu form factor could shed new light on the persistent difference between inclusive and exclusive measurements of Vub. We report the measurement of the partial branching fraction of D -> pi e+ nu in bins of the four-momentum transfer squared of the D to pi system using 347.2 /fb of integrated luminosity of the BaBar data. The D -> pi form factor is extracted with fits to the unfolded partial branching fraction using pole or generalized expansions and the value at zero recoil is determined. These form factors are compared to the current world average, the available lattice predictions, and interpreted with the expectation of a single dominant pole term. The measured form factor is then combined with previous BaBar B -> pi l nu information to determine a value of Vub.

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