The CMS electromagnetic calorimeter calibration during Run I: 
progress achieved and expectations for Run II

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The CMS ECAL is a high-resolution, hermetic, and homogeneous electromagnetic calorimeter made of 75,848 scintillating lead tungstate crystals. It relies on precision calibration in order to achieve and maintain its design performance. A set of inter-calibration procedures is carried out to normalize the differences in crystal light yield and photodetector response between channels. Different physics channels such as low mass di-photon resonances, electrons from W and Z decays and the azimuthal symmetry of low energy deposits from minimum bias events are used. A laser monitoring system is used to measure and correct for response changes, which arise mainly from the harsh radiation environment at the LHC. The challenges of the different calibration techniques are discussed along with the performance evolution during Run I. The impact on physics is illustrated through the successful quest for the Higgs boson via its electromagnetic decays, and the subsequent mass measurement of the newly discovered particle. Conclusions are drawn for the performance to be expected from 2015 onwards, following the start of the LHC Run II.