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Measurement of the Rydberg ionization current in thermal vapor cells ROBERT LOEW, DANIEL BARREDO, RENATE DASCHNER, HARALD KUEBLER, RALF RITTER, TILMAN PFAU, University of Stuttgart — Rydberg atoms confined in atomic vapor cells are promising candidates for the realization of single photon sources and quantum optical devices. To date, most information about the behavior of the Rydberg ensembles in thermal vapors has been extracted by absorptive measurements, e.g. EIT. However, to access directly quantities, like the population of the excited states, new methods are needed. In this task, the detection of the Rydberg ionization current provides a complementary and direct insight in the atomic processes. We show measurements of the Rydberg-ion current in thermal vapor cells equipped with field plates inside the vacuum. arXiv:1209.655

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