Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Numerical and experimental studies of the elastic enhancement factor of 2D open systems[1] LESZEK SIRKO, MAŁGORZATA BIAŁOUS, VITALII YUNKO, SZYMON BAUCH, MICHAŁ ŁAWNICZAK, Institute of Physics Polish Academy of Sciences, al. Lotnikw 32/46, 02-668 Warszawa, Poland — We present the results of numerical and experimental studies of the elastic enhancement factor W for microwave rough and rectangular cavities simulating two-dimensional chaotic and partially chaotic quantum billiards in the presence of moderate absorption strength. We show that for the frequency range $\nu = 15.0 - 18.5$ GHz, in which the coupling between antennas and the system is strong enough, the values of W for the microwave rough cavity lie below the predictions of random matrix theory and on average they are above the theoretical results of V. Sokolov and O. Zhirov, Phys. Rev. E, **91**, 052917 (2015). We also show that the enhancement factor W of a microwave rectangular cavity coupled to the external channels via microwave antennas, simulating a partially chaotic quantum billiard [1], calculated by applying the Potter-Rosenzweig model with $\kappa = 2.8 \pm 0.5$ is close to the experimental one. Our numerical and experimental results suggest that the enhancement factor can be used as a measure of internal chaos which can be especially useful for systems with significant openness or absorption. [1] M. Ławniczak, M. Białous, V. Yunko, S. Bauch, and L. Sirko, Phys. Rev. E **91**, 032925 (2015).

[1]This work was partially supported by the Ministry of Science and Higher Education grants N N202 130239 and UMO-2013/09/D/ST2/03727.

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Date submitted: 04 Nov 2015 Electronic form version 1.4