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Spreading widths of giant dipole resonance in the lead region

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The statistical properties of the 1^- spectrum in energy interval 9.5-18.5 MeV for ^{206}Hg, ^{204,206,208}Pb and ^{210}Po nuclei are analysed thoroughly within the microscopic approach and the Random Matrix Theory. The microscopic approach is based on the mean field, simulated by means of the Skyrme interaction SLy4 and the volume pairing interaction, treated in the BCS approximation. The quasiparticle random phase approximation and the coupling between one- and two-phonon states are used to generate excited states. The comparison of the results, obtained with the aid of the coupling calculated microscopically and by means of the Gaussian random distribution, demonstrates a close similarity in the description of the spreading widths of the Isovector Dipole Giant Resonanse of the considered nuclei. Furthermore, a good agreement is obtained with the microscopic description of the decay widths if the random distribution is used for the coupling between microscopic one-phonon states and two-phonon states that are also generated by the Gaussian Orthogonal Ensembles distribution.

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