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New development of non-stationary resonant dynamics

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Abstract: We present a new development of the non-stationary resonant dynamics based on the concepts of the limiting phase trajectories and the coherence domains (clusters). This development allows to consider more wide class of autonomic conservative and non-conservative systems (in connection with the problem of synchronization), and to take into account external fields. It requires introducing the such notion as resonant attractor and using the additional analytical procedure which is semi-inverse method. Several problems relating to efficient energy exchange between weakly coupled resonant clusters in different mechanical systems are discussed together with significant applications. This work was supported by Russian Science Foundation according to the research project no. 16-13-10302

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