COMPOSITION OF REDUCTIONS IN THE BIFURCATIONAL ANALYSIS OF VARIATIONAL PROBLEMS

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The uniting idea of this work of - composition of two or is morethan reductions in the bifurcational analysis of variational boundary-value problems, that means the passage from the initial (infinity-dimentional) problem to that completing (finite-dimensional) for some reduced passages, including (generally speaking) infinite-dimensional. Intermediate passages can to be carried out under different circuits of - of Poincare, Lyapunov-Schmidt, of Morse-Botta and their generalizations.

Among the considered examples – a problem about phase transitions in ferroelectric crystal environments in which it is used either reduction of Dzyaloshinskii, or the special circuit intended for the analysis bifurcations of the extremals of functional from finite-to-one critical point in a case of $\widetilde{\mathbb{Z}}_2^4$ - symmetry and 4-dimentional degeneration. With their help are investigated characteristic flat sections of caustic also are described set bifurcations critical orbits. Other examples are connected to the analysis of the bifurcation of the loop solutions of the equations Euler-Poisson on the groups of $SO(3)$ and $SL(2)$.