

*Periodic solutions of Robe problem*

Anna Gołębiewska, Nicolaus Copernicus University

*E-mail address:* aniar@mat.umk.pl.

We consider the bifurcation of solutions of the Robe problem, see [4], which is a modification of the restricted three body problem. We use the variational method, associating with the Hamiltonian system a functional defined on the Sobolev space  $\mathbb{H}^{\frac{1}{2}}(S^1, \mathbb{R}^{2N})$ . The solutions of the system are in one-to-one correspondence with the critical points of such functional. Considering the equilibrium points of the system, we obtain the families of trivial solutions of the parameterized problem and study bifurcation from these families. To this end we define the bifurcation index in terms of the degree for  $S^1$ -invariant strongly indefinite functionals, described in [3]. Using the description of this degree for the hamiltonian systems, given in [2], and the theory of the normal forms of symplectic matrices, we compute the bifurcation index.

This is a joint work with S. Rybicki and A. Ureña.

REFERENCES

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