

## Periodic solutions of Hamiltonian system on $CP^N$

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Arnold conjecture for  $CP^N$  states that Hamiltonian system generated by  $H \in C^\infty(S^1, CP^N)$  has at least  $N + 1$  solutions with period 1. This result has been proven many times. In [1], authors did it using Conley's index. Based on their approach it is possible to prove this conjecture with additional condition using Leray-Schauder's degree.

In this presentation, I will give an overview of this proof and later I will talk about extension of this result to hamiltonian delay equations and Arnold conjecture for  $CP^N \times CP^M$ .

- [1] Asselle, L., Izydorek, M., Starostka, M. (2023). The Arnold conjecture in  $CP^n$  and the Conley index. *DISCRETE AND CONTINUOUS DYNAMICAL SYSTEMS-SERIES B* 28, 2603–2620. <https://doi.org/10.3934/dcdsb.2022184>