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| Contribution Title: | UNBOUNDED ORBITS IN POSITIVE DEFINITE HAMILTONIAN SYSTEMS |
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| YRS seminar: | NO |

In this talk, we briefly describe how to construct unbounded orbits exhibited by the systems:

$$H(\xi, t) = T(\xi) + \epsilon U(\pi\xi, t)$$

where $\xi \in T\mathbb{T}^2$, $T$ represents a Riemanian metric and $U$ is a potential, periodically depending on $t$. $T$ is assumed to have exactly one closed geodesic $\Gamma$ for some indivisible $h_0 \in H_1(\mathbb{T}^2, \mathbb{Z})$ and there is only one positive Morse geodesic $\Lambda^+$ as well as only one negative geodesic $\Lambda^-$, both approach to $\Gamma$ as time goes to positive and negative infinity. We show that for generic potential perturbation $U$, there exists an orbits whose energy goes to infinity as time goes to infinity. In the previous work of John Mather, he has shown the existence of unbounded orbits, but the initial value needs to be sufficiently large. Here, the initial speed is not assumed sufficiently large, in fact, the component of the initial velocity along $\Gamma$ can be any value.