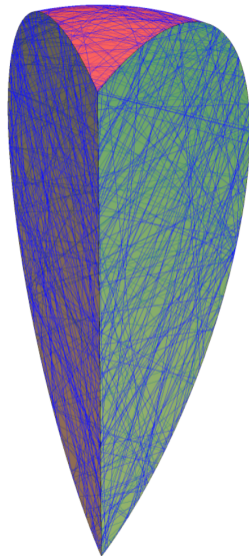
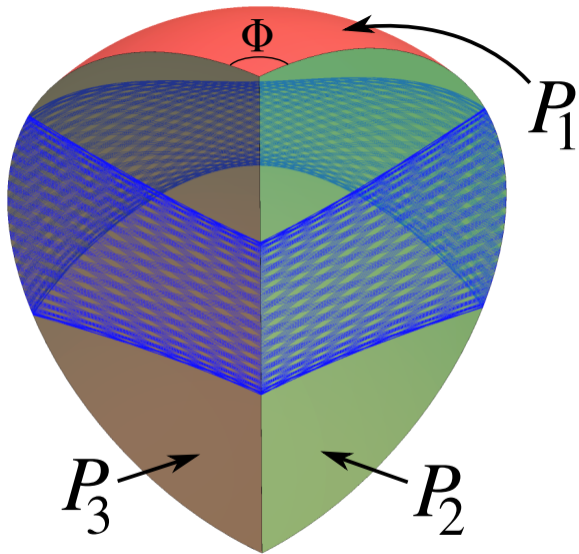


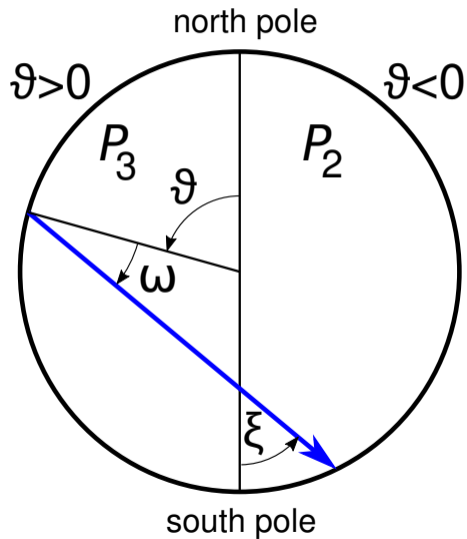
Diplomová práce – geodetické kulečníky

Školitel: **Tomáš Tyc**

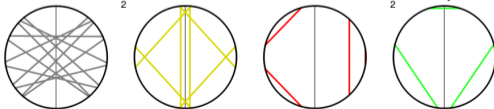
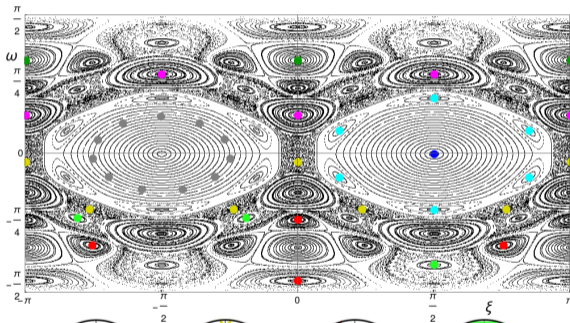
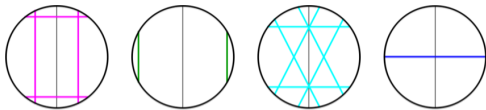
Prezentace ÚTFA, 24. 2. 2023



Parametrizace trajektorie



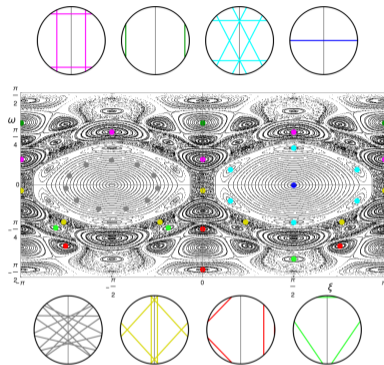
Fázový portrét



$$\Phi = 0.828\pi$$

Video – disk trajectories vs. phase space for a fixed Φ

Video – phase space diagram for Φ from 0 to π



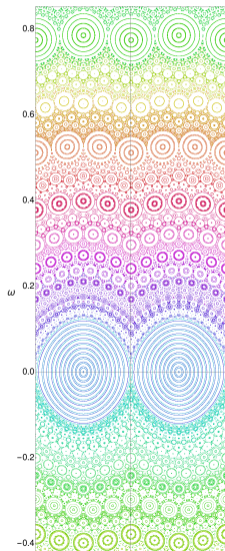
- Mohou být stabilní (eliptické) nebo nestabilní (hyperbolické)
- Liouvillův teorém dává invariantní míru

$$d\Omega = \cos \omega \, d\xi \, d\omega = d\xi \, d(\sin \omega) = d\xi \, d\zeta$$

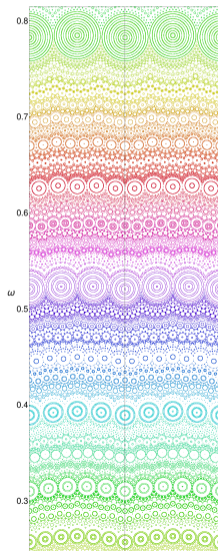
- Vlastní hodnoty Jakobiho matice určují stabilitu

Video – merging of the fixed points at the point Γ

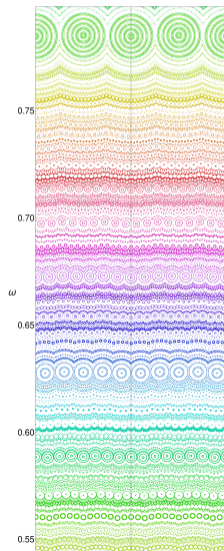
$\varepsilon = 0.005 \pi$



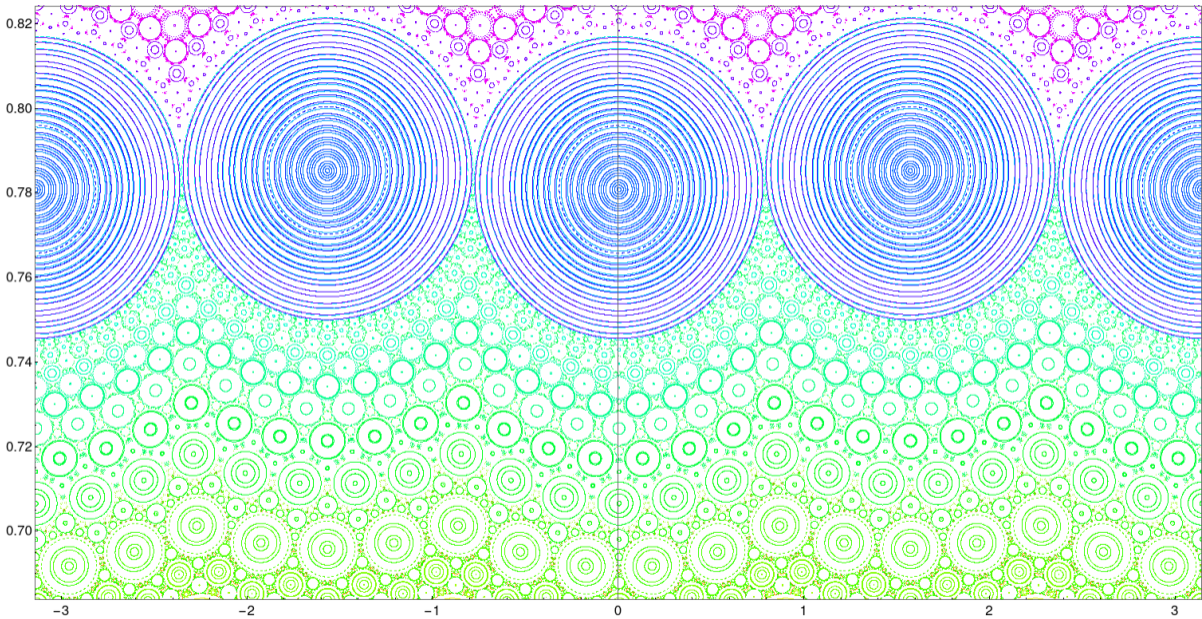
$\varepsilon = 0.001 \pi$



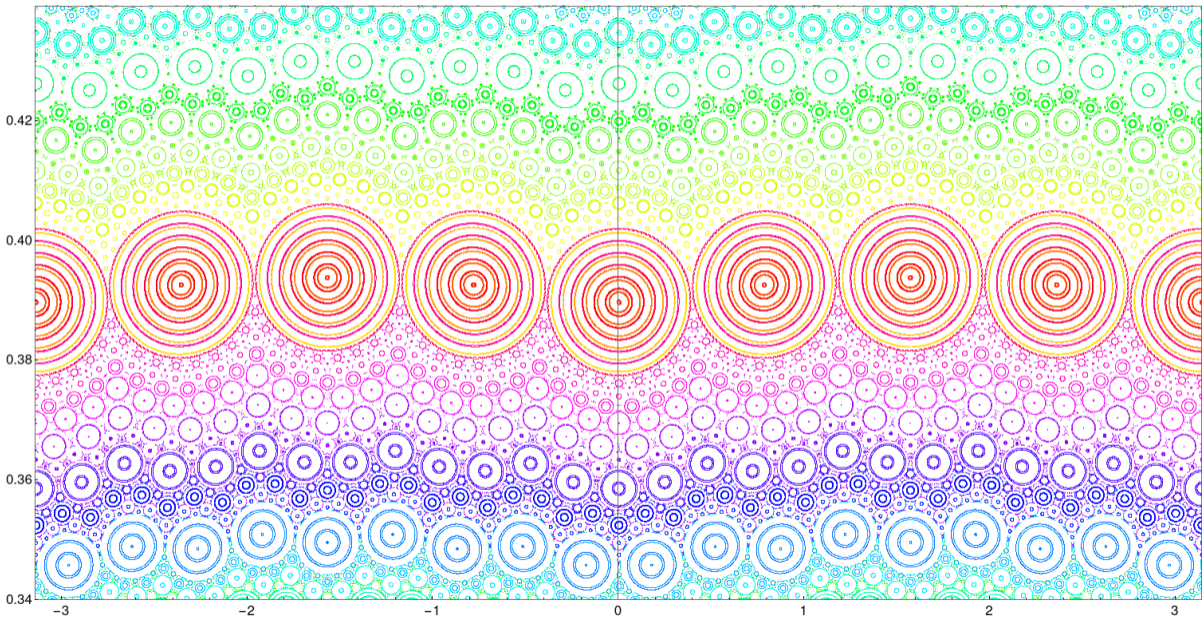
$\varepsilon = 0.0002 \pi$



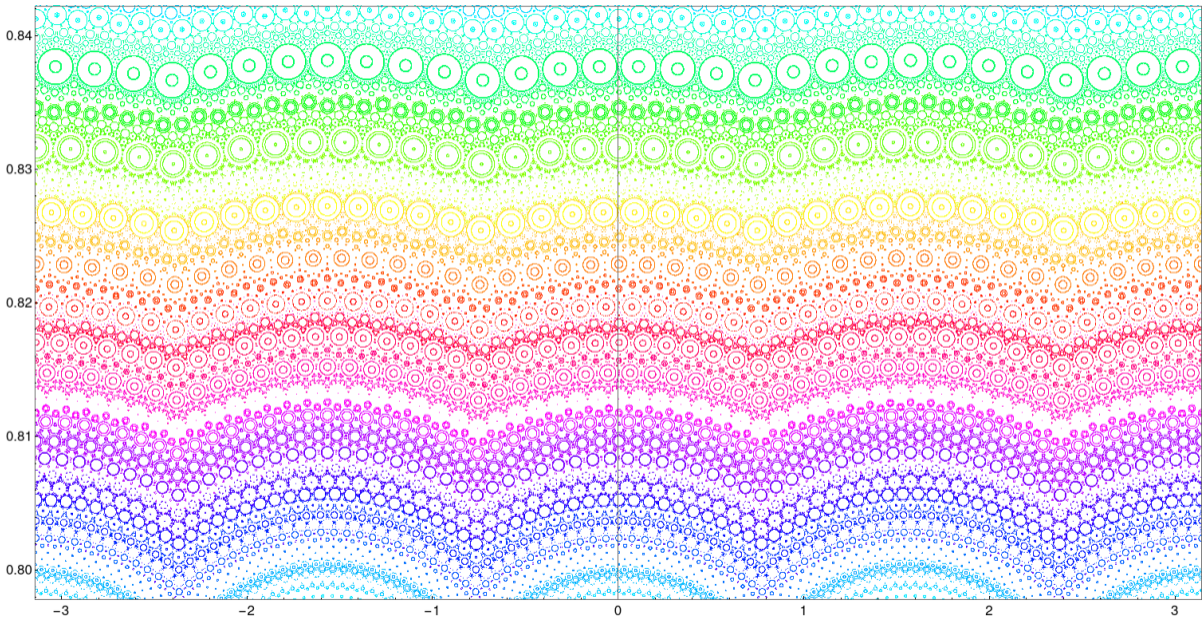
$$\varepsilon = 0.002 \pi$$



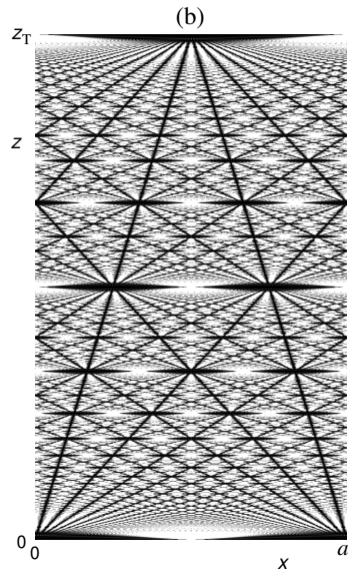
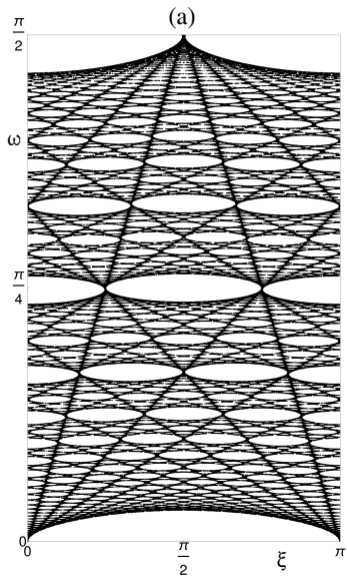
$$\varepsilon = 0.001 \pi$$



$\varepsilon = 0.0002 \pi$



Talbotův jev



- Fraktální struktura bifurkací
- Fraktální struktura fázového portréту pro $\Phi \rightarrow \pi$
- Přesnější popis kulové vady (sférické aberace)
- Spektrum kvantovaného kulečnicku a jeho vztah ke klasickým trajektoriím
- Kulečnický vzniklé z dalších geodetických čoček

