

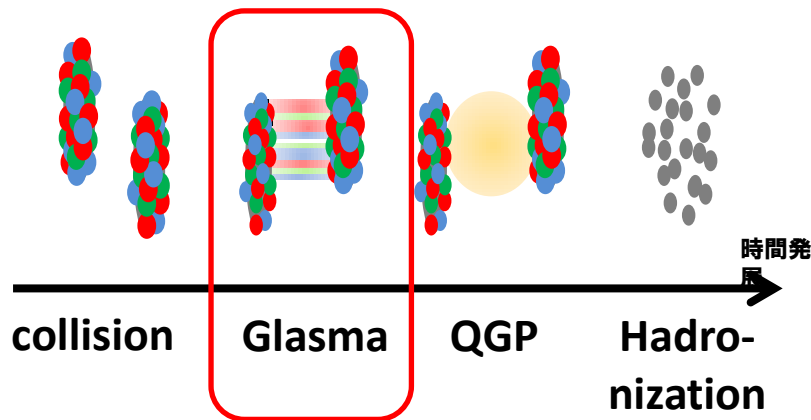
Husimi-Wehrl entropy in quantum chaotic system

-An efficient calculational method-

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Early thermalization in Heavy Ion Collisions

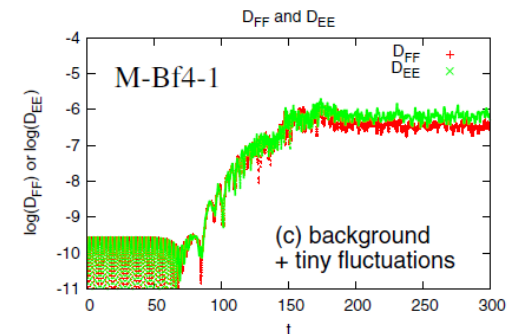
Hydro model $\rightarrow$ initial time $\tau \leq 0.6 \text{ fm}/c$
Too early



Large amount of entropy is
created in the early stage.

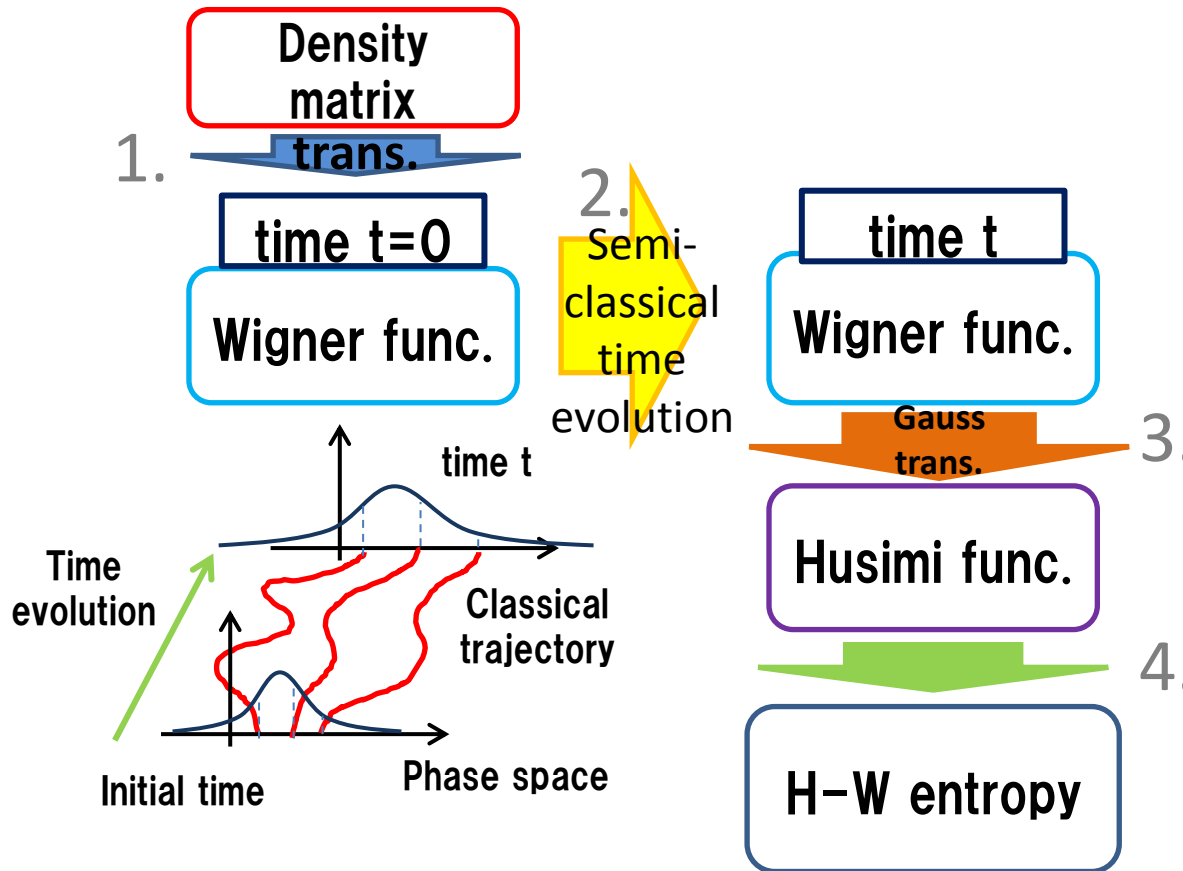
Entropy induced by Classical Yang-Mills chaotic behavior

T.Kunihiro et al.(2010)
H.Iida et al.(2013)



Fluctuations induce chaotic behavior
= Quantum fluctuation

Husimi-Wehrl entropy



1. Wigner transformation

2. Time evolution of Wigner function

3. Husimi function

4. Definition of H-W entropy

Monte-Carlo method

Test-particle method