MHD winds in quiescent compact binaries

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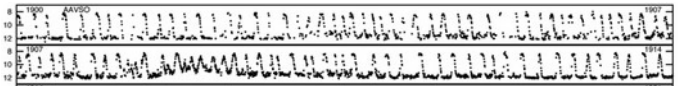
Context and methods



What drives accretion during quiescence ?

- Cold and little ionised ⟹ Resistivity ⟹ No MRI (Gammie & Menou, 1998)
- DIM requires $\alpha = 10^{-2}$ in quiescence
- Spiral shocks are not enough (Van den Bossche+2023)

⟶ **New finite-volume GPU code Idéfix (Lesur+2023) for global 3D MHD simulations with**

H/R = 10^{-2} + Ohmic resistivity

Results

MHD wind

Inner disc
- Turbulent
- Magnetically dominated: $\beta \ll 1$
- Elevated: H/R $\gg 10^{-2}$

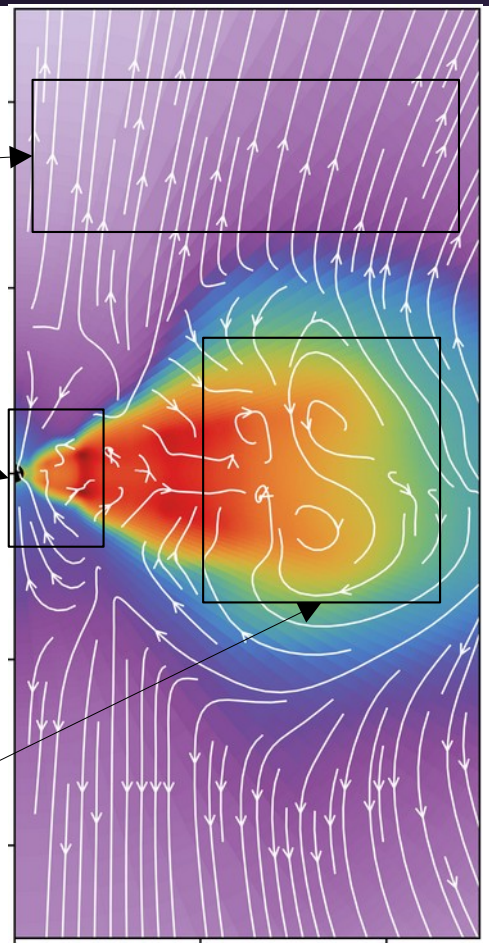
⟶ JED / MAD

Ferreira & Pelletier 1995, Ferreira+2006, ...

Igumenshchev 2008, Tchekhovskoy+2011, ...

Outer disc
- Thermally dominated

⟶ SAD



Gas density and streamlines