

Early Black Hole formation by accretion of gas and dark matter

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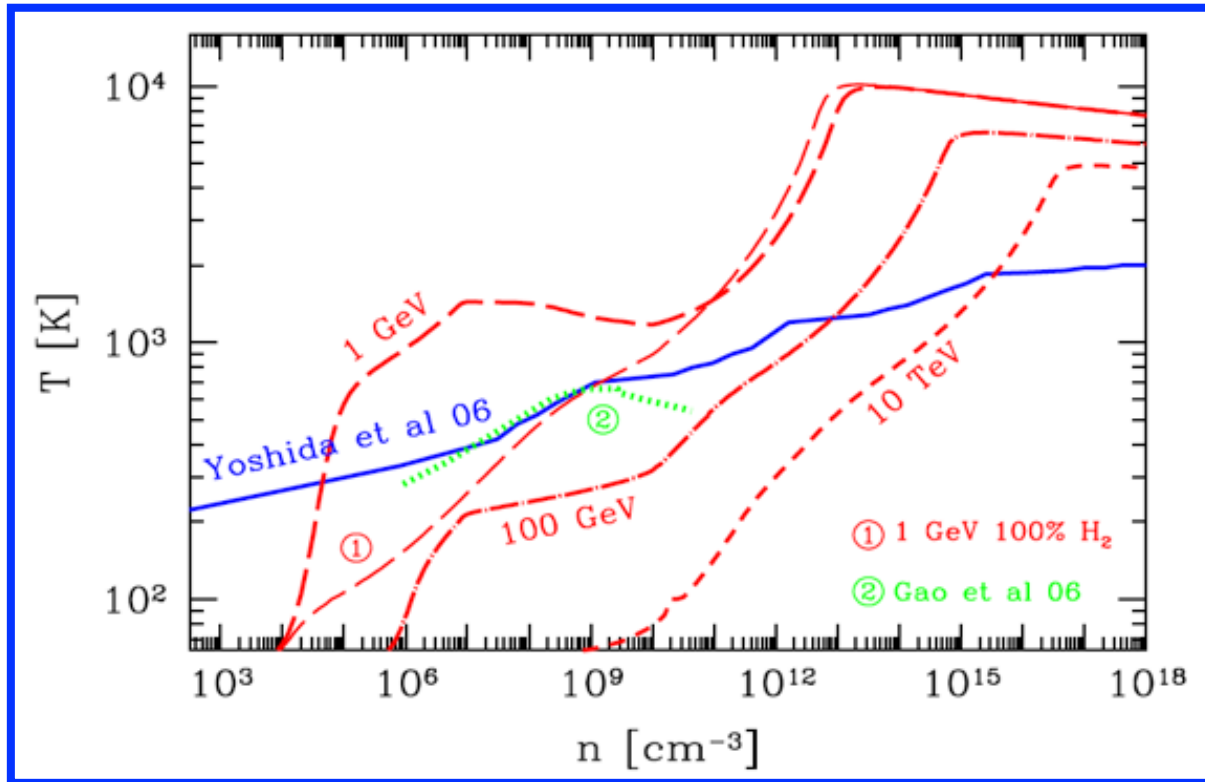
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Dark matter annihilation in early mini-halos

Impact of dark matter heating



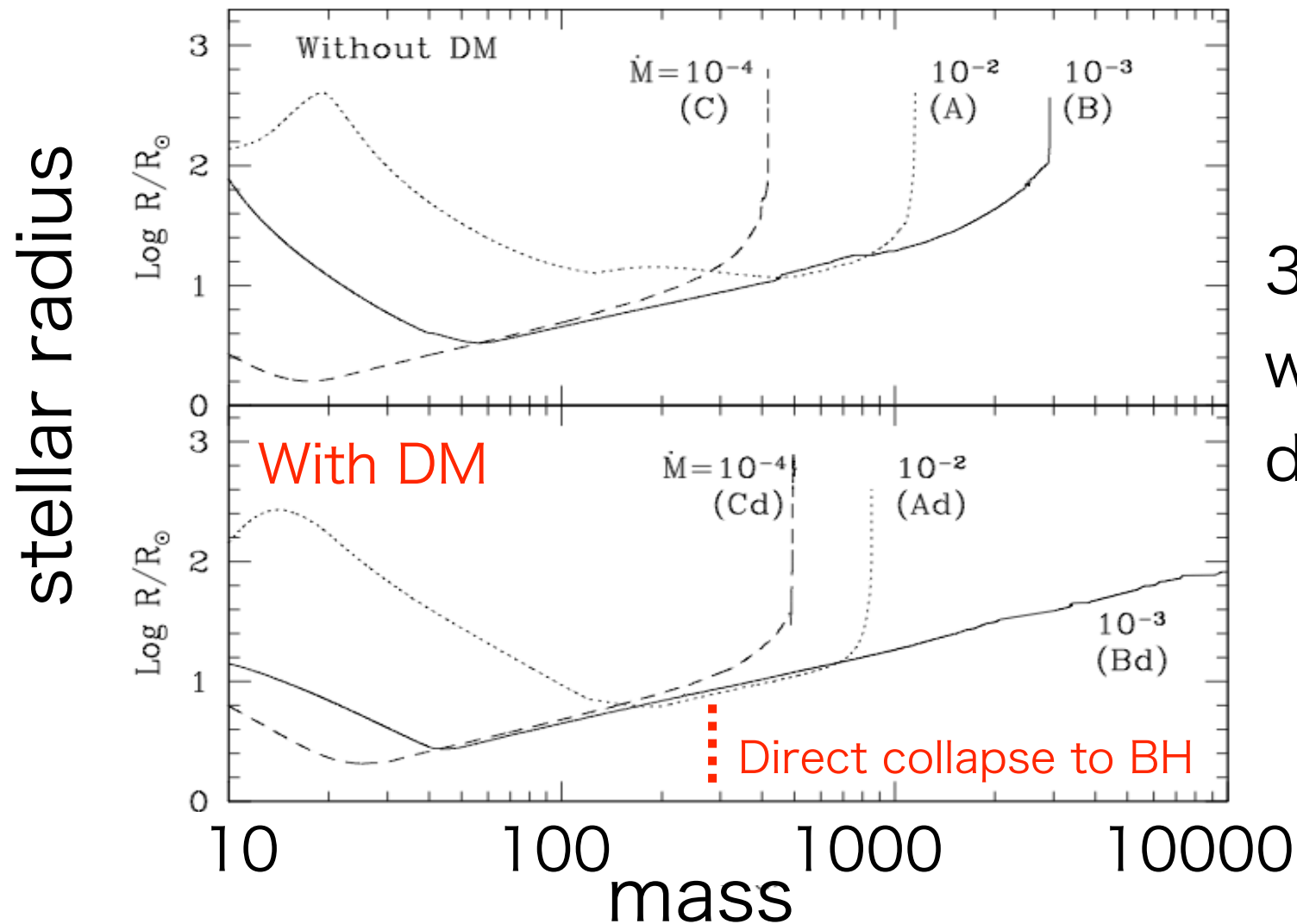
Spolyar, Freese, Gondolo 2008, PRL



Dark matter particles self-annihilate at the center, and generate significant heat

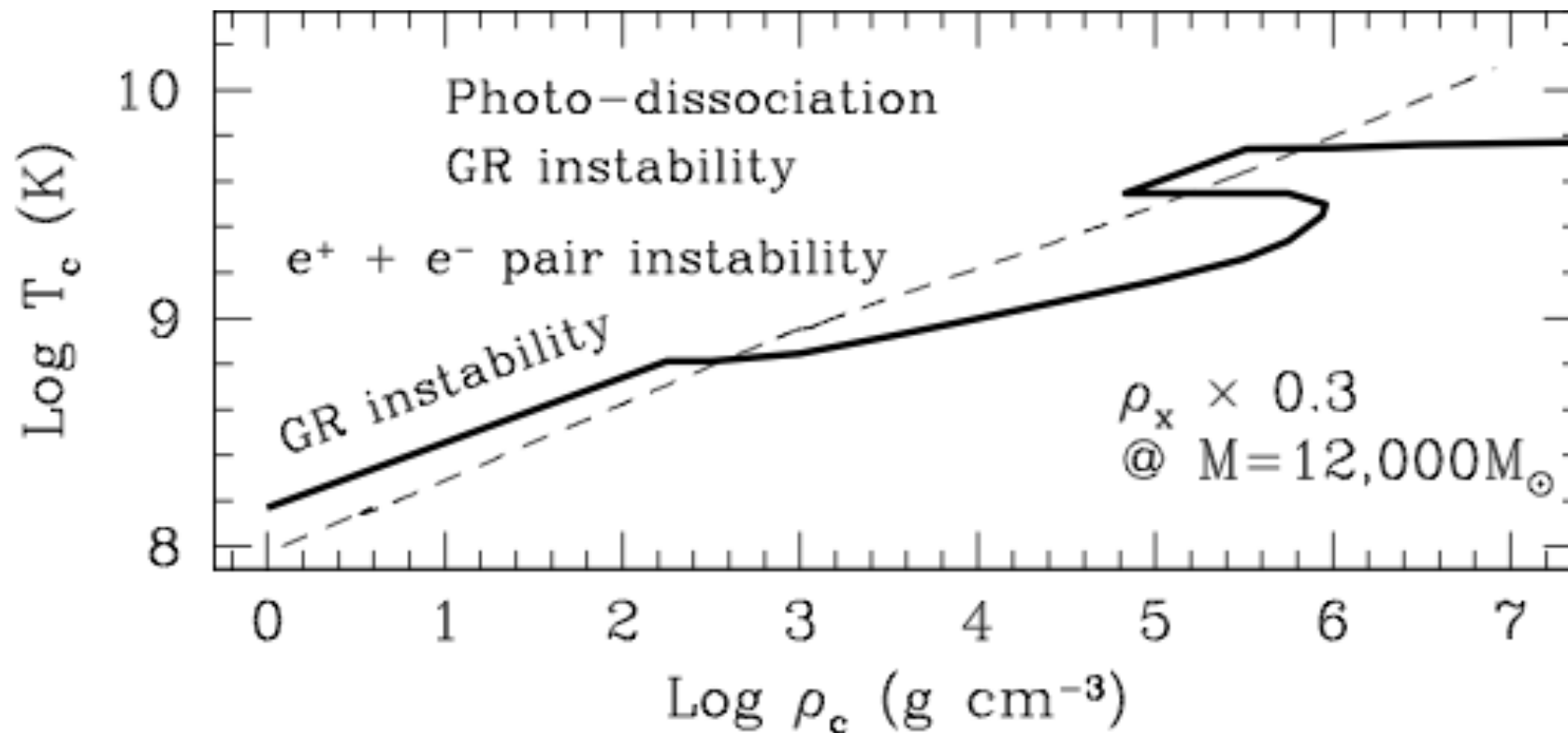
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Umeda, NY+ 2009, JCAP



3 cases
with constant
 dM/dt

Final core collapse



Intermediate Mass Black Hole at high-z!