

INVISIBLE TRACES OF CONFORMAL SYMMETRY BREAKING

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Features:

- classical conformal symmetry,
- all masses generated via Coleman-Weinberg mechanism,
- hierarchy problem alleviated,
- perturbative and stable up to the Planck scale,
- vector DM candidate, gauge boson χ ,
- exhibits supercooling.



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Supercooling:

- phase transition happens at temperatures significantly below EW scale,
- thermally produced barrier lasts till $T = 0$,
- induces strong Gravitational Wave signal.

Model

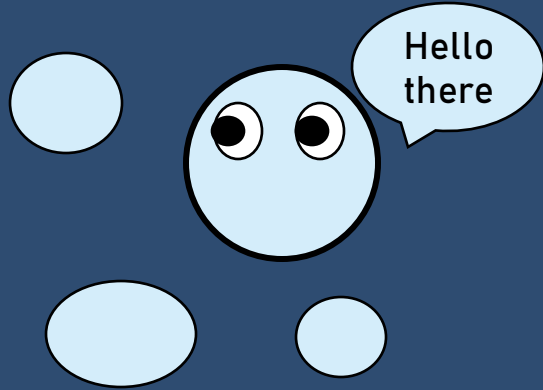


- Phase Transition Properties**
- Time scale
 - Bubble wall dynamics
 - Energy budget

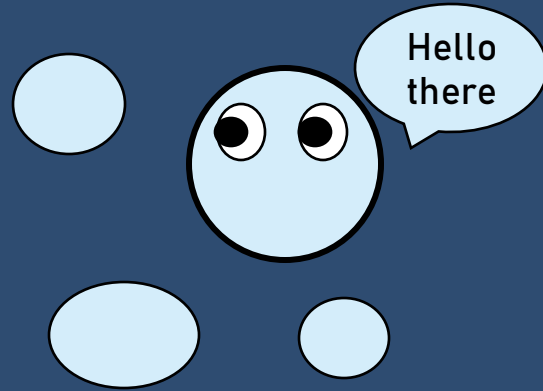


GW power spectrum
 $\Omega_{\text{GW}}h^2$

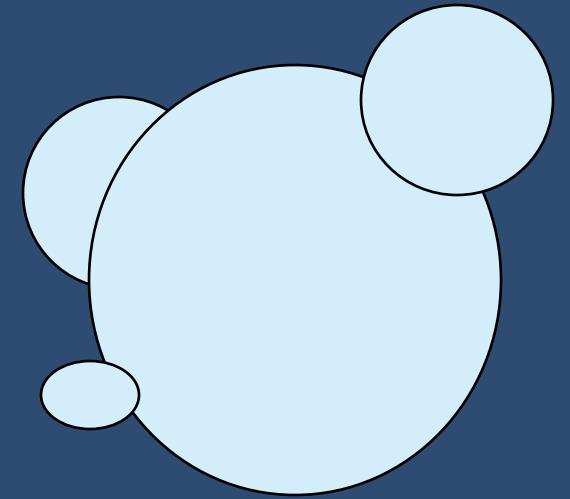
- Nucleation temperature



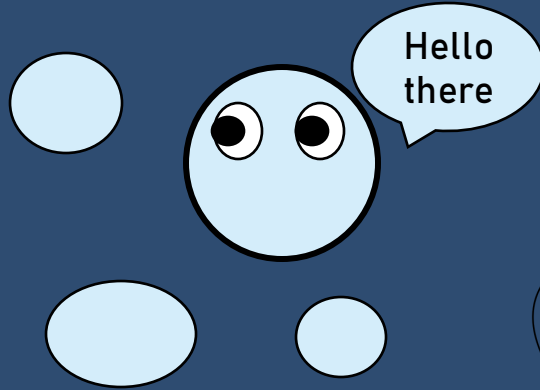
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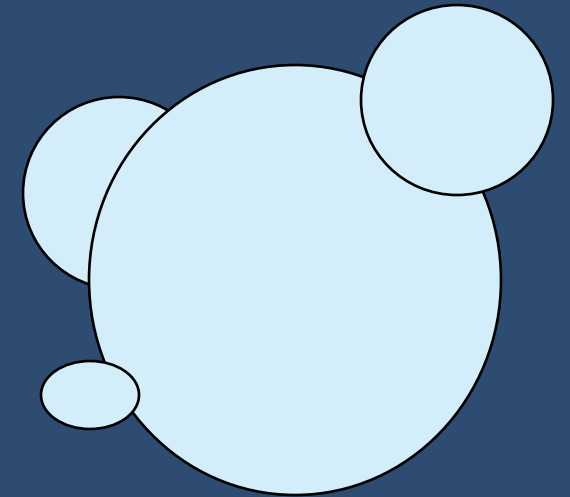
- Percolation temperature



- Nucleation temperature



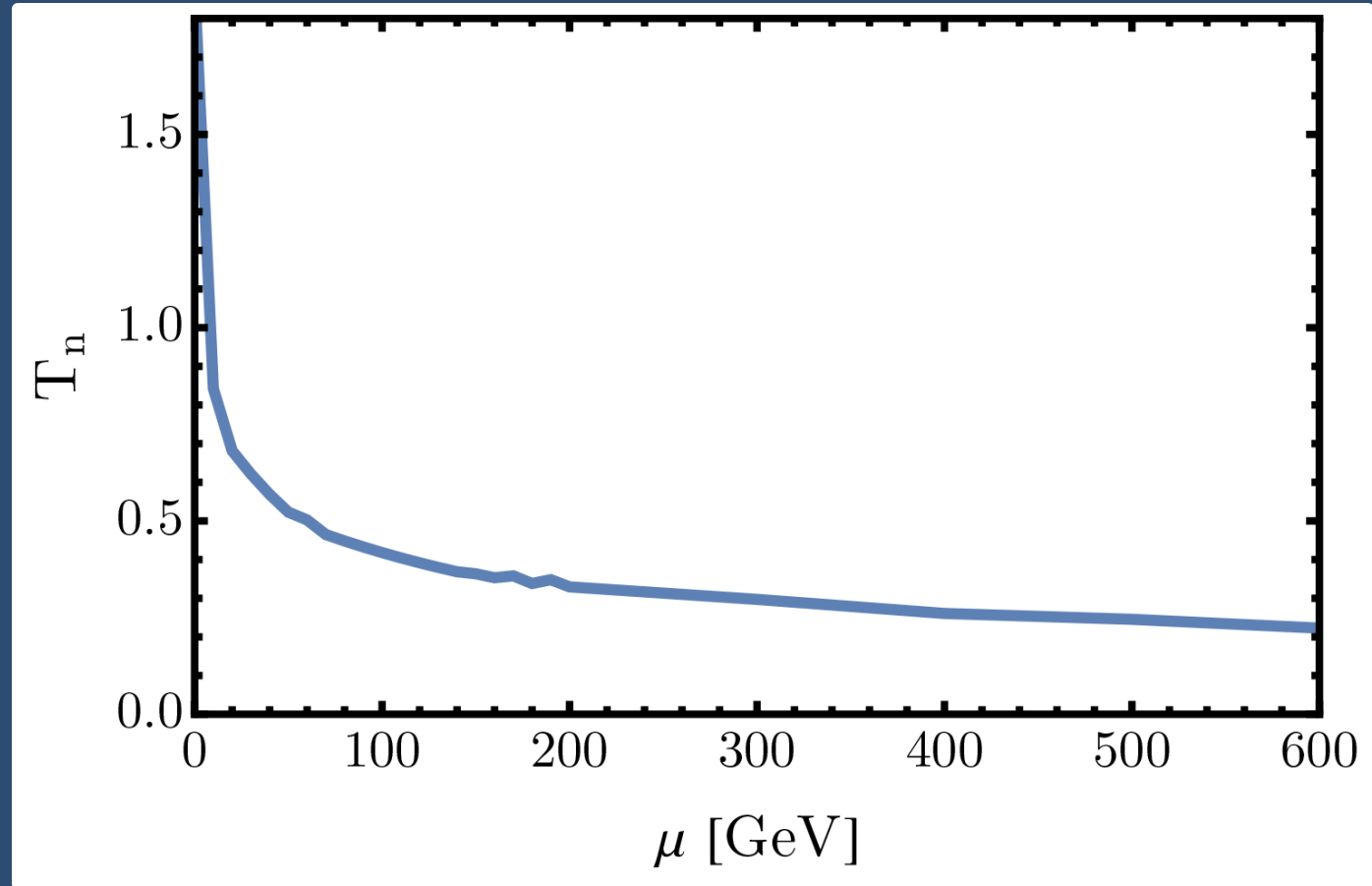
- Percolation temperature



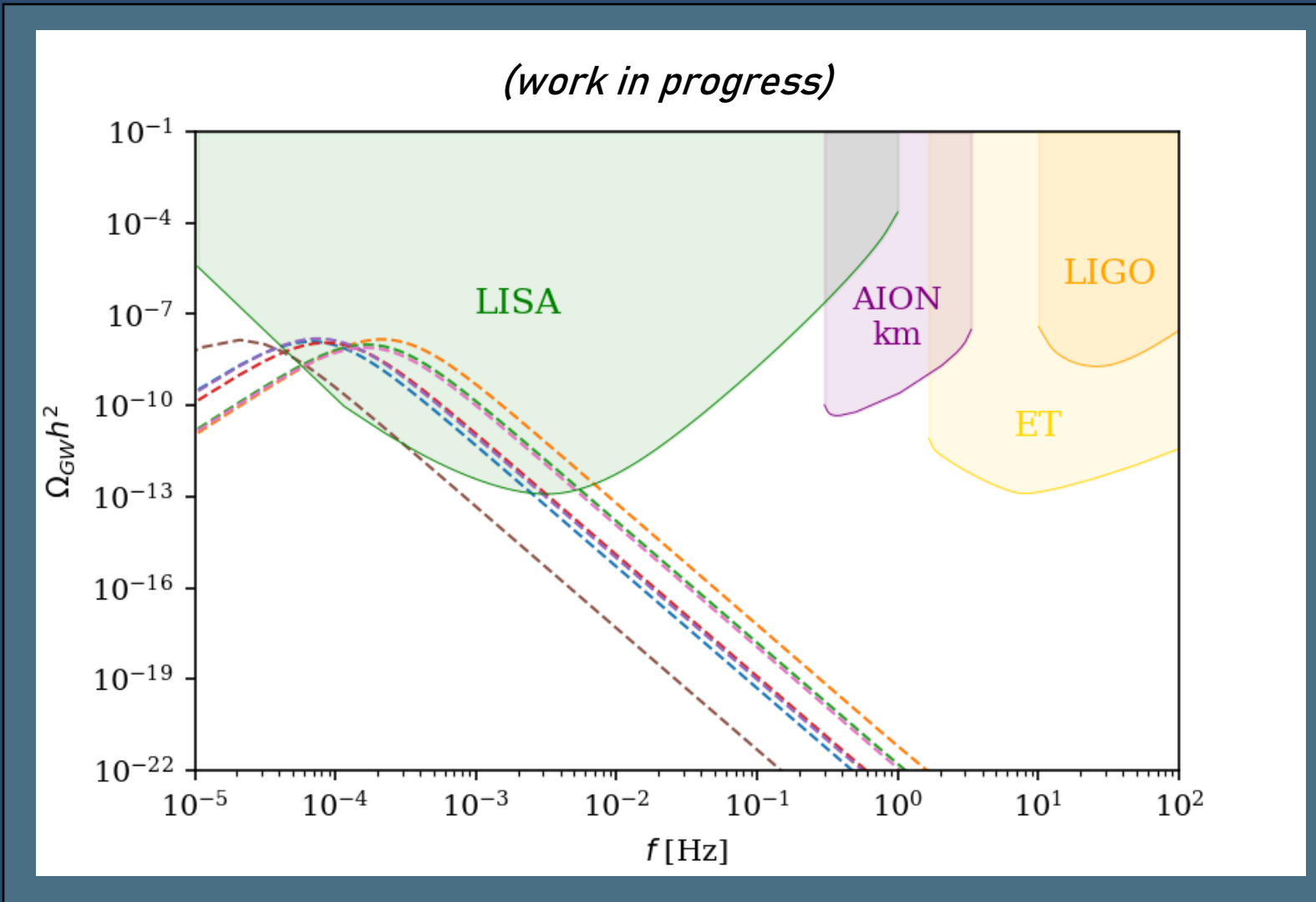
$$\Omega_{\text{GW}} = \Omega_{\text{collisions}} + \Omega_{\text{sound waves}} + \Omega_{\text{turbulences}}$$

- Efficiency factors,
inclusion of all possible
sources

- RG scale dependence



This affects other parameters and therefore the resulting spectrum.



Goal: provide accurate predictions for LISA.

Thank you



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