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## Sunyaev Zel'dovich effect in galaxy clusters cavities: thermal or non-thermal origin?

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Several galaxy clusters host x-ray cavities, often filled with relativist electrons emitting in the radio band. In the cluster MS 0735.6+7421 the cavities have been detected through the Sunyaev Zel'dovich (SZ) effect, but it has not been possibile to determine if this effect is thermal (produced by a very high temperature gas filling the cavity) or non-thermal (produced by the relativistic electrons producing the diffuse radio emission detected in the cavity).

In this talk we discuss the role of the density of the high temperature gas inside the cavity in determining whether the dominant SZ effect is the thermal or the non-thermal one, and how it can be possible to distinguish between the two possibilities.

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