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## Study and mitigation of the Virgo air conditioning system noise

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The heating, ventilation and air conditioning (HVAC) systems for the experimental halls of the Virgo interferometer generate considerable low-frequency noise of seismic, acoustic and electromagnetic nature that could affect detector sensitivity. This was experienced several times in the Virgo detector lifetime and most recently during the third science run. In preparation for the fourth run, we carried out an extensive study to identify critical noise components and noise pathways. We have designed and implemented several interventions to reduce the noise produced by the HVAC plants inside the experimental areas achieving significant improvements.

In this poster, we describe the main solutions adopted, their implementation and the results obtained. Overall, we would like to propose a few technical solutions and rules of good practice that may be useful for the design of future interferometer air conditioning plants.

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