

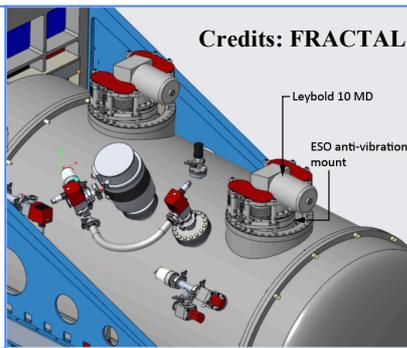
## Anti-vibration Mount for Cold Heads

ESO has signed an agreement to license anti-vibration mount (AVM) for Closed Cycle Cooler Cold Head to our company **FRACTAL S.L.N.E.** FRACTAL S.L.N.E. can provide products that make use of this technology.



Credits: ESO

CRIRES@VLT. The AVMs in the He cold heads (Leybold 10-MD) reduce vibrations to the levels demanded by the instrument



Credits: FRACTAL

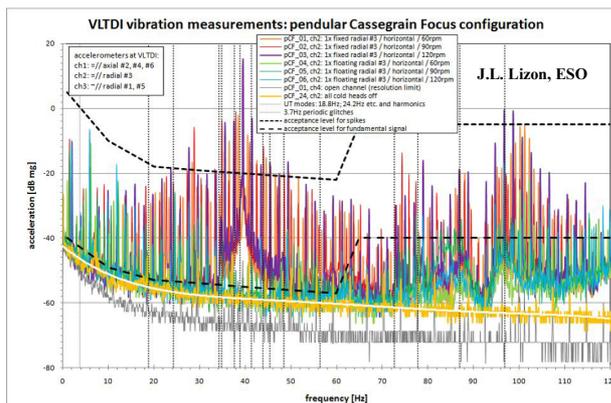
The new instrument for GEMINI (SCORPIO), currently in detailed design phase carried out by FRACTAL, shall include the technology of Anti Vibration Mounts

**1<sup>st</sup> generation** was based on a damping system, developed by ESO, which was applied to ISAAC and NACO (using the cold head RG 5/80 from Leybold).

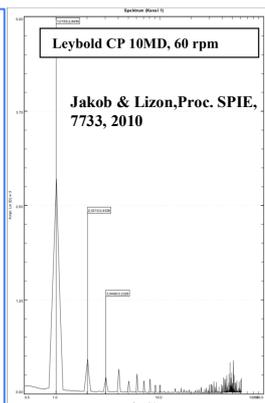
**2<sup>nd</sup> generation** incorporated improvements to support the new cold head standard (Leybold 10 MD) and to cope with the high stability demanded by the VLTI configuration. AVMs are well functioning in HAWK-I and KMOS.

**3<sup>rd</sup> generation** is still based on the Leybold 10 MD and is able to keep the cold heads of CRIRES fully floating between two soft bellows removing vibration coming from the motion of the heavy displacer.

### ESO laboratory test campaign measurements



A free pendulum dummy configuration shows the heads horizontal action measurements. Red and green curves show fixed and AVM cold head vibrations respectively.



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