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## Mitigating low-frequency noise: role of tilt, software tools, controller optimization

*mercoledì 24 maggio 2023 09:00 (15 minuti)*

Tilt-induced noise plays a crucial role in current and planned gravitational-wave (GW) detectors, as well as in smaller seismically-stabilized platforms. We present an example case for seismically-isolated platform “VATI-Grav” in our laboratory, discussing tilt measurement setup, modelling of system performance and potential mitigation strategies. In this work we use general-purpose open source simulation toolkit “Spicypy” that we develop in collaboration with other researchers across the GW science community, including LISA, LIGO and Einstein Telescope collaborations. In the example case presented, we model control system dynamics with seismic disturbance propagating through it, taking into account sensor noise and tilt effects. Other capabilities of Spicypy project are briefly discussed, in particular highlighting plans for optimization of the controller and system geometry for the “VATI-Grav” platform, and other systems such as suspensions of the Einstein Telescope.

**Autori principali:** BASALAEV, Artem (Universität Hamburg); GERBERDING, Oliver (Universität Hamburg, Institut für Experimentalphysik)

**Relatore:** BASALAEV, Artem (Universität Hamburg)

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