LAViSta: Laboratories in Annecy working on Vibrations and Stabilisation

**Linear collider**

\[ L = \frac{K}{\sigma_x \cdot \sigma_y} = 10^{34} \text{ cm}^{-2} \text{s}^{-1} \quad (\text{CLIC}) \]

Beam vertical size \( \sigma_y = 1 \text{ nm} \)

**Problem:** Last quadrupole displacement >> 1 nm

**What makes the two last quadrupoles move?**

- **Goal:** Stabilisation of quadrupoles at 1/3 of nanometre

- **Real size prototype:** Measurement of the structure vibrations (Sensors: Geophones, accelerometers...)

- **Cycle:**
  - Sensor
  - Signal processing: ADC, filters...
  - Actuator
  - Control: DAC, Power electronic
  - Calculator: Active control algorithm

- **Results obtained at the micrometre scale:**

- **Piezoelectric actuators**
- Pileup of PZT ceramics
- Mechanical structure