**CRESST**: Direct detection of Dark Matter in the form of WIMPs

- Scintillating **CaWO$_4$ crystals** as target material
  → energy depositions excite phonons → **Phonon detectors**
- Detection of scintillation light with separate **light detector**
  → allows particle discrimination
- Signals measured with transition edge sensors (TES) consisting of a thin tungsten film

![Diagram of CRESST detector setup]

**Diagram Description**

- **Heat bath**
- **Thermal coupling**
- **Light detector** (with TES)
- **Target crystal**
- **Reflective and scintillating housing**
- **TES**

**Graph**

- **Film resistance [mΩ]** vs. **temperature [mK]**
- **ΔR**
- **ΔT**
Phonon-Light Detectors for the CRESST Dark Matter search
Anja Tanzke on behalf of the CRESST collaboration

- Data of phonon detector of the current data-taking phase
  - energy resolution: 0.090 keV at 2.6 keV
  - threshold: 0.60 keV

- New small phonon detectors will be optimized to enhance the sensitivity for low mass WIMPS
  → more sensitivity with a lower threshold of \(<0.1\) keV

![Graph showing energy distribution with labels: \(^{129}\)Ta (L1), \(^{129}\)Ta (M1), Cu (K), L2.](image)

![Diagram of detector components: block-shaped target crystal, light detector (with TES), reflective and scintillating housing, CaWO\(_4\) stick (with holding clamps).](image)