Nanoparticle-based strain gauges

- High sensitivity
- Large deformation range
- High impedance
A very high sensitivity for extremely precise measures

Comparison of the resistance variation measured by a nanoparticle-based strain gauge (blue) and a metallic strain gauge (gray).

Conditioning

• Bias voltage: typ. 0.5 - 12 V (DC)
• Possible conditioning: Wheatstone bridge (full, half bridge), voltage or current polarization, linear or logarithmic amplifier...

Substrate

• Polyimide
Nanolike is a young innovative company specialized in the development and the manufacturing of high impedance sensors (strain gauges, temperature sensors, humidity sensors...) combining a high sensitivity, a low electrical consumption and a large deformation range.

**Your custom-made strain gauge**

**Adjustable parameters fitting the client needs**

- **Gauge length:** \( L: 1 \text{ mm} - \infty \)
- **Gauge width:** \( w: 1 \text{ mm} - \infty \)
- **Gauge thickness:** \( h: 25 - 150 \mu\text{m} \)
- **Active area length:** \( a: 0.1 - 0.5 \text{ mm} \)
- **Active area width:** \( b: 1 - 50 \text{ mm} \)

**Features of the active area**

- **Sensor response shape:** \( \frac{\Delta R}{R_0} = \exp(g.\varepsilon)-1 \)
- **Gauge factor:** \( k: 30 - 150 \)
- **Nominal resistance:** \( R: \text{between } 1 \text{ and } 10\text{M}\Omega \)
- **Strain range:** \( \varepsilon: 1 - 40 000 \mu\text{m/m (limit: 4%) } \)
- **Operating temperature:** \( T: -80 \text{ à } +80\text{°C} \)