

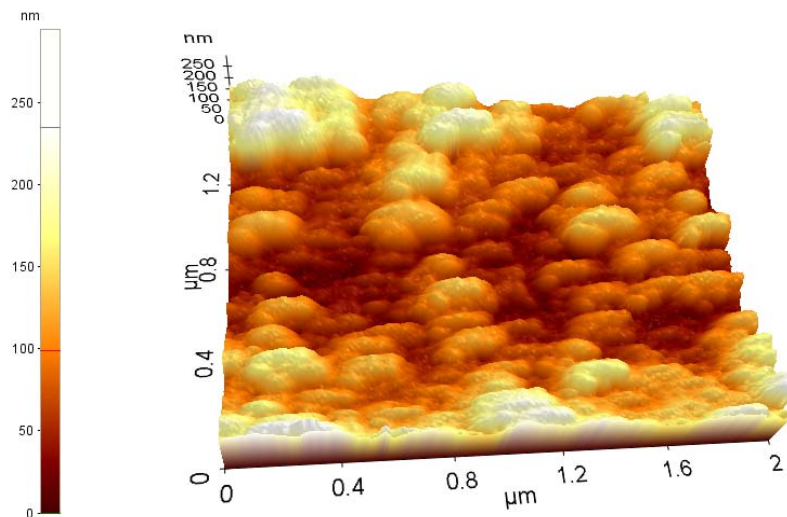
# Nanoparticles of TiO<sub>2</sub> manufactured with Coldab®

**Challenge** To make nano-structured TiO<sub>2</sub> (titania) on metallic substrates for an undisclosed application.

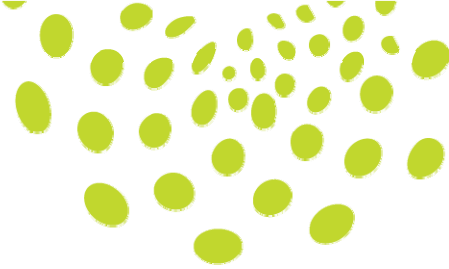
**Solution** Nanoparticles of TiO<sub>2</sub> deposited on titanium and other materials with Coldab® laser deposition technology.

**Background** In this undisclosed application it is necessary to simultaneously control size distribution, crystallinity and adhesion of the nanoparticles.

## Results



**Figure 1.** AFM picture of TiO<sub>2</sub> nanoparticles with dimensions of 20-26 nm. We were able to control the size of nanoparticles in different regimes from a few nm to 150 nm. The crystallinity was confirmed by XRD and TEM measurements.



### Coldab® advantages

1. Precise control of the size of deposited nanoparticles
2. Control of crystallinity of the deposited material
3. Superior adhesion of the deposited layers
4. Deposition on heat-sensitive substrates
5. Ability to implement the process on an industrial scale

**Fields of use**            N/A

Picodeon's patented Coldab® laser deposition technology offers the unique benefit of being able to deposit virtually any type of layer on any type of material. We can now do what was impossible before. Layers include diverse functional thin films and coatings with strong adhesion to heat-sensitive materials like plastic and paper. In addition, Coldab® promotes cost-effective and environmentally friendly production through shorter cycle time, energy-saving, low vacuum and expanding surface production from pinhead size to large sheets.

*When it comes to surfaces, you now have the freedom to do what you want. Contact us to see how we can help you with your particular coating application.*