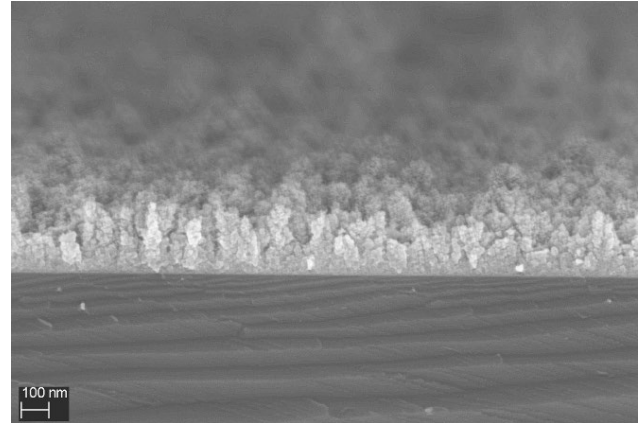


Electrically conducting and gas-sensitive SnO_x- Thin films deposited by atmospheric pressure plasma

Transfer offer

With the help of atmospheric pressure plasma jets (APPJ), a variety of functions and coatings can be deposited on a wide range of surfaces. This technology offers the possibility of producing thin (100 - 300 nm) and electrically conductive SnO_x coatings, which in addition also have gas-sensing properties.



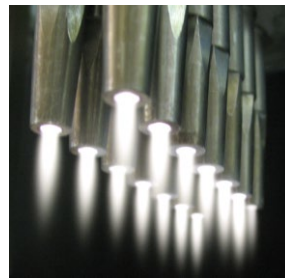
SEM-examination at cross-section of SnO_x-film

Technical solution

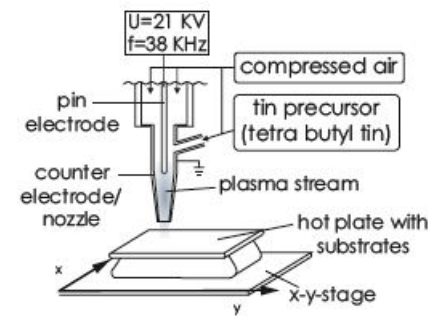
At INNOVENT, numerous plasma sources in various constructive and functional designs are used. In addition, chemical precursors can be introduced via various modifications of these commercially available devices. These precursors are introduced in the reactive plasma, transported to the substrate and can form thin layers.



Plasma-jet systems



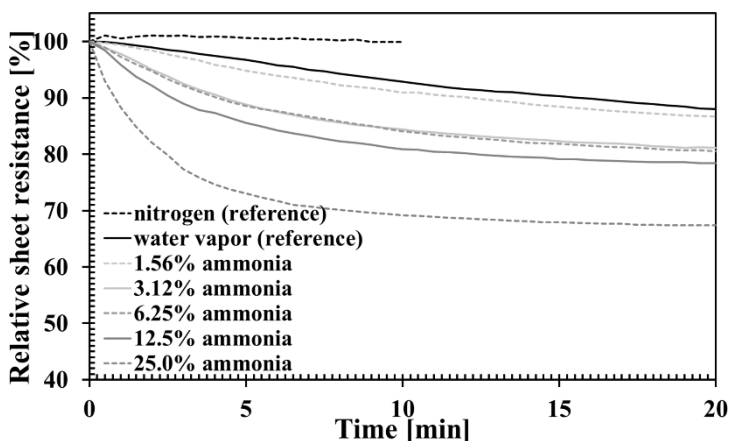
By using serial arrangement of plasma jets, areal film deposition is possible



Schematic structure of a Plasma jet coating system

Advantages

- Deposition of the layers under atmospheric pressure conditions (no vacuum technology)
- Fast procedure
- Formation of films with a high specific surface (sensor applications) and good electrical conductivity



Change of the specific electrical resistance in the presence of reducing gases (ammonia)

Level of development and property rights

Investigations on the deposition of SnO_x thin films as well as extensive film characterizations were carried out. Furthermore, investigations showed an advantageous sensor activity of the films.