

# Sputter coater

JEOL, JFC-2300HR



[www.tue.nl/mmp](http://www.tue.nl/mmp)

## Introduction

When using a Scanning Electron Microscope in conventional, high vacuum, mode with non-conductive samples, the samples need to be protected by a very thin conductive layer. Without this coating layer there will be charging and heating/melting of the sample. Charging on the sample will distort the SEM image and prevents a truthful image. The layer needs to be very thin, to be able to still see underlying nanometer sized structures.



## Principle

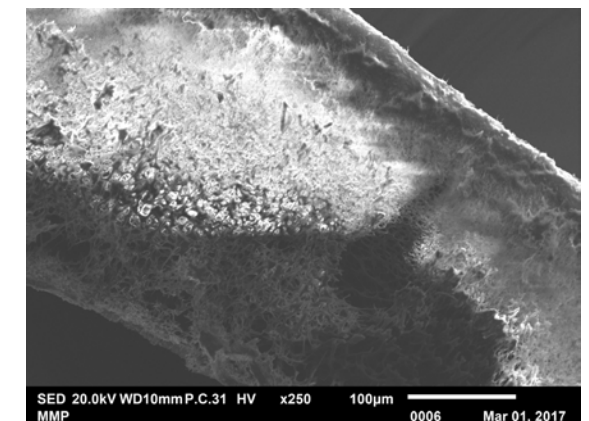
Sputter coating is a deposition process to cover the specimen with up to a few nanometer thick layer of a conductive metal, for example gold, palladium, chromium or titanium. By use of a high vacuum, adjustable current and a controlled leak of argon gas, an argon plasma is formed in the sample chamber. This argon plasma bombards the metal target, ejecting metal atoms from the target which deposit on any surface, including the sample specimen.

## Application and benefits:

- Coating SEM samples with a conductive metal layer
- Reduced microscope beam damage
- Increased thermal conduction
- Reduced sample charging (increased conduction)
- Improved secondary electron emission
- Reduced beam penetration with improved edge resolution
- Protects beam sensitive specimens.

*PES sample uncoated;*

- *charging*
- *melting*
- *poor resolution*



*PES sample platinum coated*

- *no charging*
- *no beam damage*
- *high resolution*

