

## A flow cell for electron microscopy imaging of specimen in liquid or gas.

### **Disclosure Number**

200501559

### **Technology Summary**

High-resolution imaging (i.e. with nanometer resolution) is often performed in vacuum with a probe beam of for example X-rays, or electrons. Since the specimen is exposed to vacuum special sample preparation is necessary and often frozen samples are imaged. This presents a problem especially for biological samples preventing imaging under natural, 'wet' conditions. Another example is the investigation of materials in a liquid environment, or a gas environment, for example, catalysts. Imaging of samples in a liquid environment, or a gas environment is possible with light-optical microscopy. But, this type of microscopy is limited by the spatial resolution. A new way of imaging samples is enabled by using a special liquid, or gas cell, with a thin membrane that closes the cell, but that is transparent for electrons at the same time. Here we describe a gas/liquid flow cell for use in a scanning (transmission) electron microscope (STEM). The flow cell contains two windows that are transparent for an electron beam.

### **Inventor**

PENNYCOOK, STEPHEN J

Condensed Matter Sciences Division

### **Licensing Contact**

DETRANA, ALEXANDER G

UT-Battelle, LLC

Oak Ridge National Laboratory

Rm 139, Bldg 4500N, MS: 6196

1 Bethel Valley Road

Oak Ridge, TN 37831

Office Phone: (865) 576-9682

E-mail: [DETRANAAG@ORNL.GOV](mailto:DETRANAAG@ORNL.GOV)

Note: The technology described above is an early stage opportunity. Licensing rights to this intellectual property may be limited or unavailable. Patent applications directed towards this invention may not have been filed with any patent office.