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Metal-graphene composites for electrical contacts used in high voltage applications [MTL8]

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Project funded by:



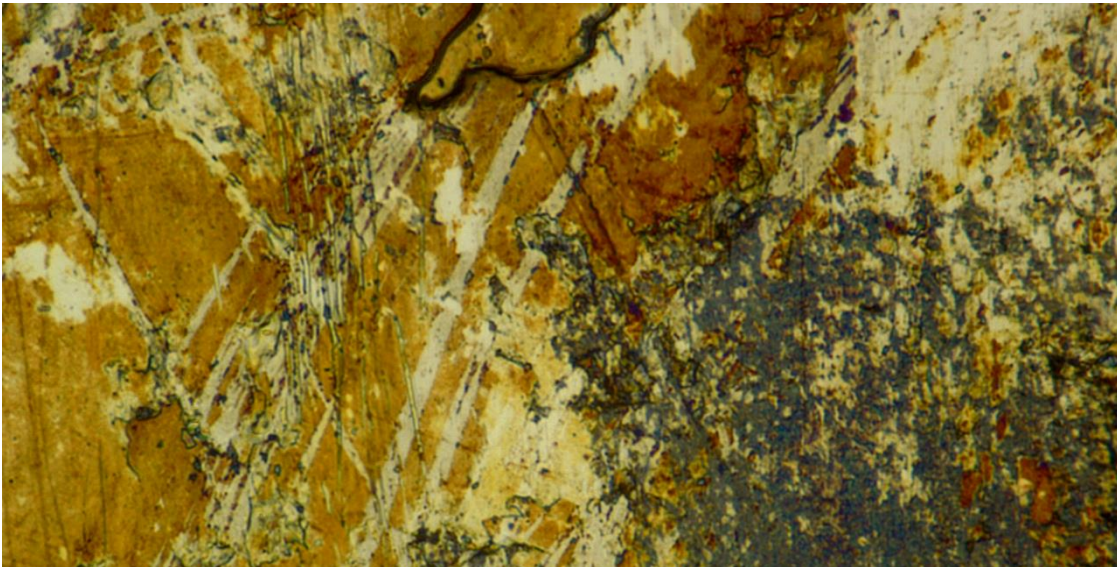


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Smart distributed power systems
bring more frequent operations for
many components

A need for new and improved contact
materials



Metal-graphene composites

- Low contact resistance and low friction
- Excellent resistance to wear and corrosion

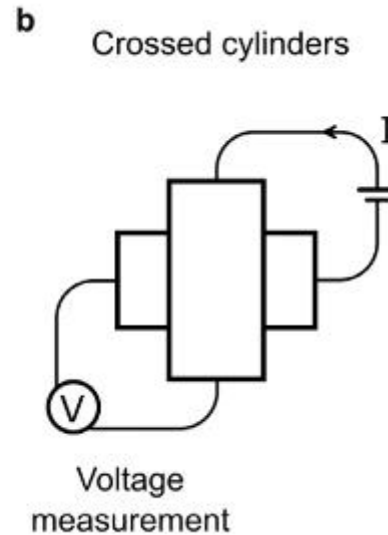
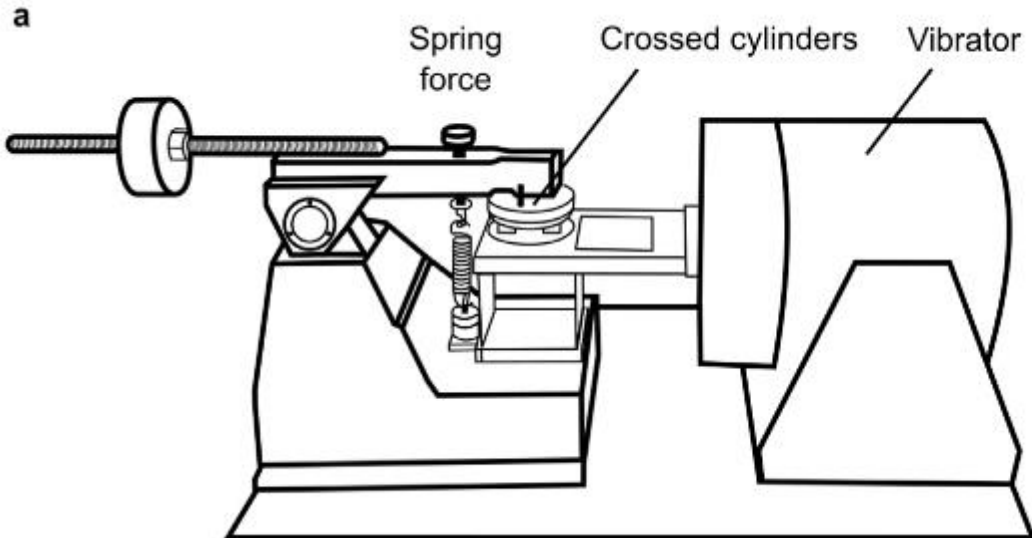
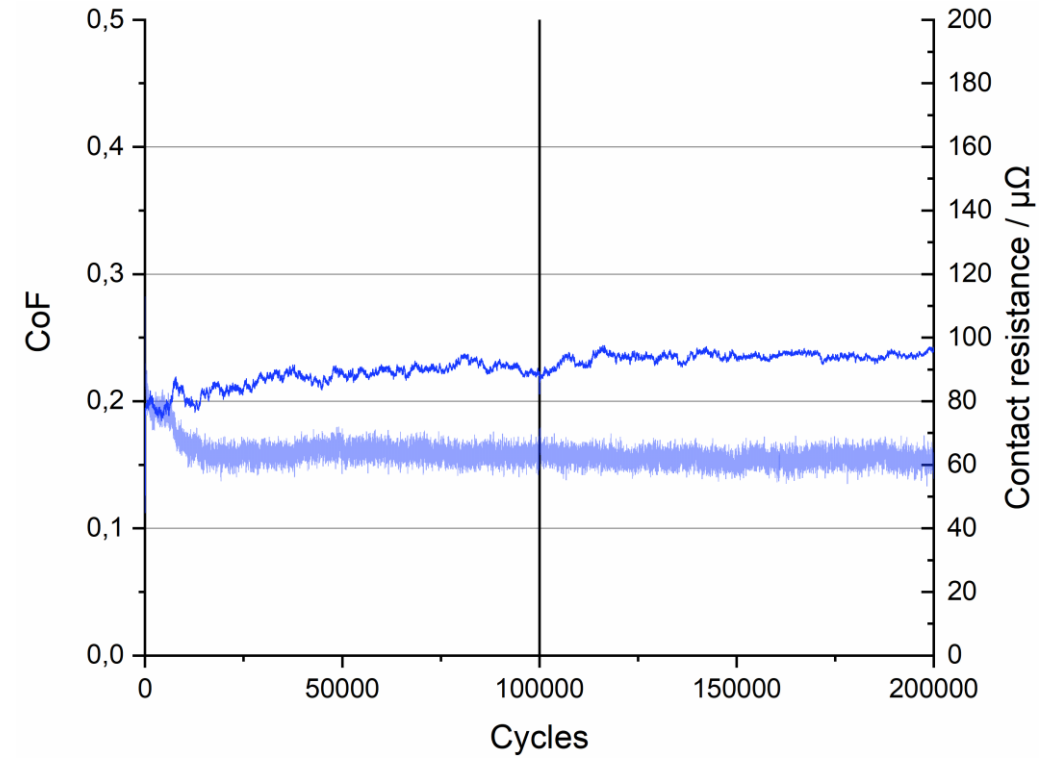
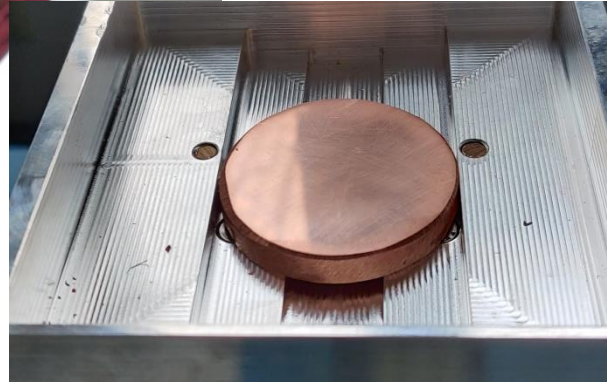
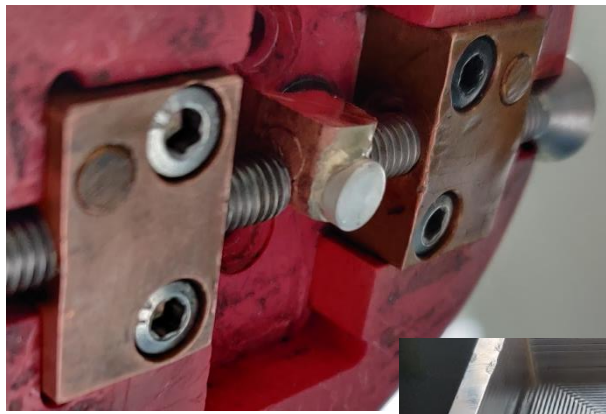
Understanding and exploiting these quite
preliminary findings

- Here the *contact microstructure* is central



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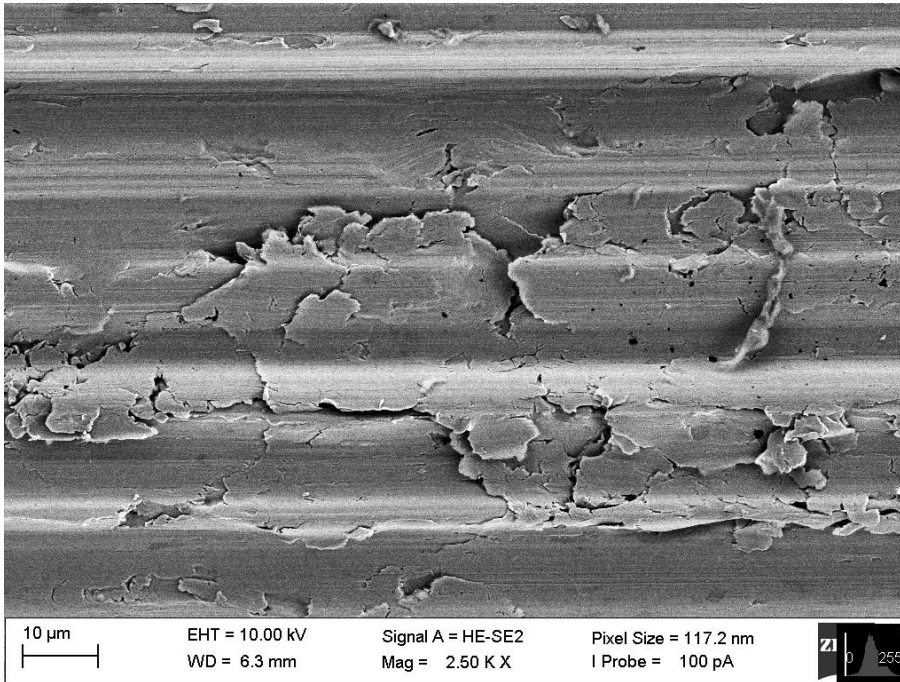
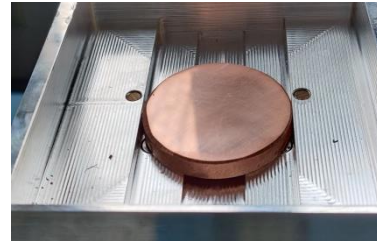
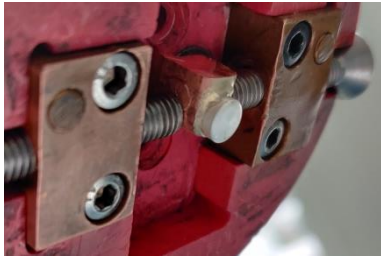
Recreate mechanisms in laboratory scale test

Greater control of parameters and possibility to follow progression of material response to electrical and mechanical load

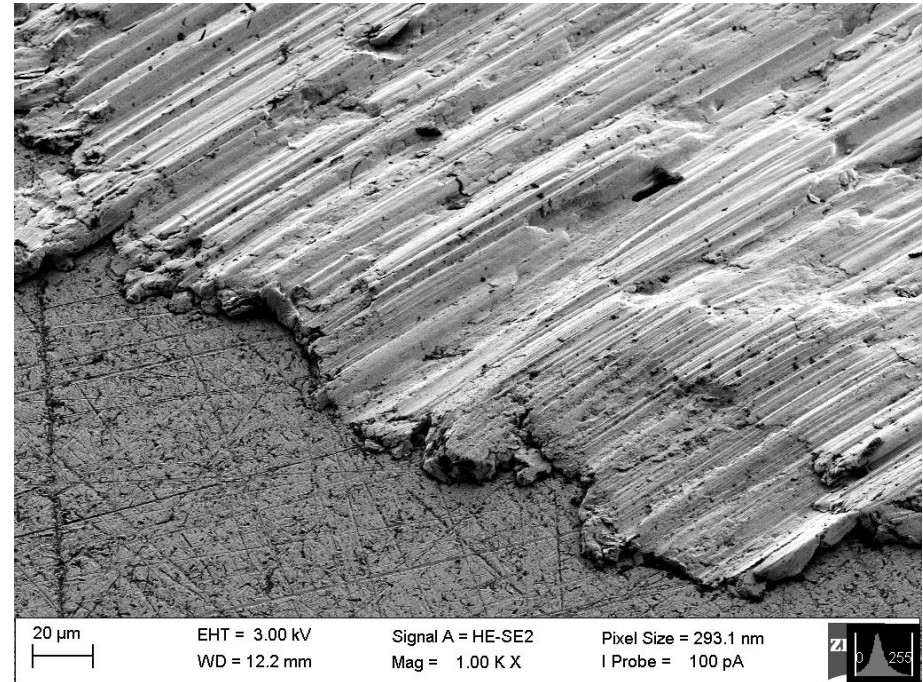


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Altered surface layer – *Tribofilm*
Thin flakes, shearing, cracking
Super imposed deformation by
hardened transfer layer on counterbody



Transfer of silver-graphene
Macro depression of copper underneath
In reality, self-mated Ag-Graphene



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The silver-graphene components perform quite well in the tests

Low, but equally important, **stable** friction, wear, and contact resistance

To fully evaluate the materials, to be able to find the true potential, an additional project is running in parallel (MTL10)

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