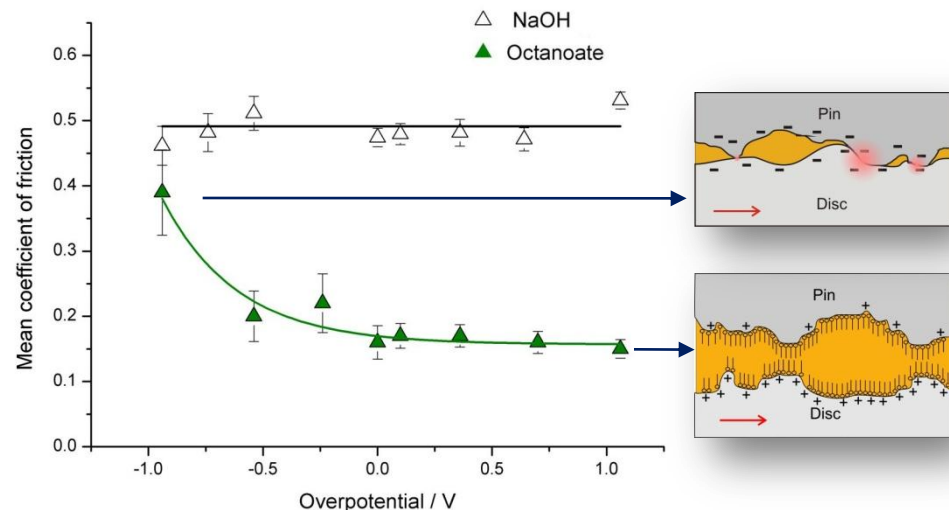
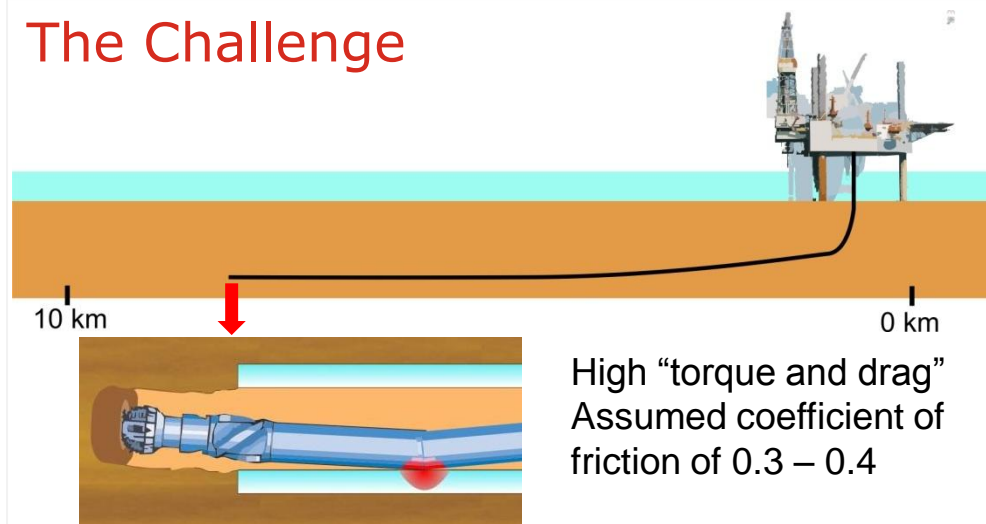


Reduction of Friction in Oil Drilling

Background

- Reduction of friction would increase the capability to drill deeper reservoirs
- New technique is developed to reduce friction by applying electric potentials to steel/steel tribocontacts (using a pin-on-disc rig)
- Boundary lubrication is enhanced when friction modifying additives are attracted to the surfaces in contact

The Challenge



Conclusions

- High friction at cathodic potentials is due to direct steel/steel contact
- Anodic potentials attract the octanoate additive, forming a tribofilm, thus allows lower friction by the reduction of direct steel/steel contact
- No dependence of friction on potential seen in NaOH, due to absence of friction modifying additive such as the octanoate