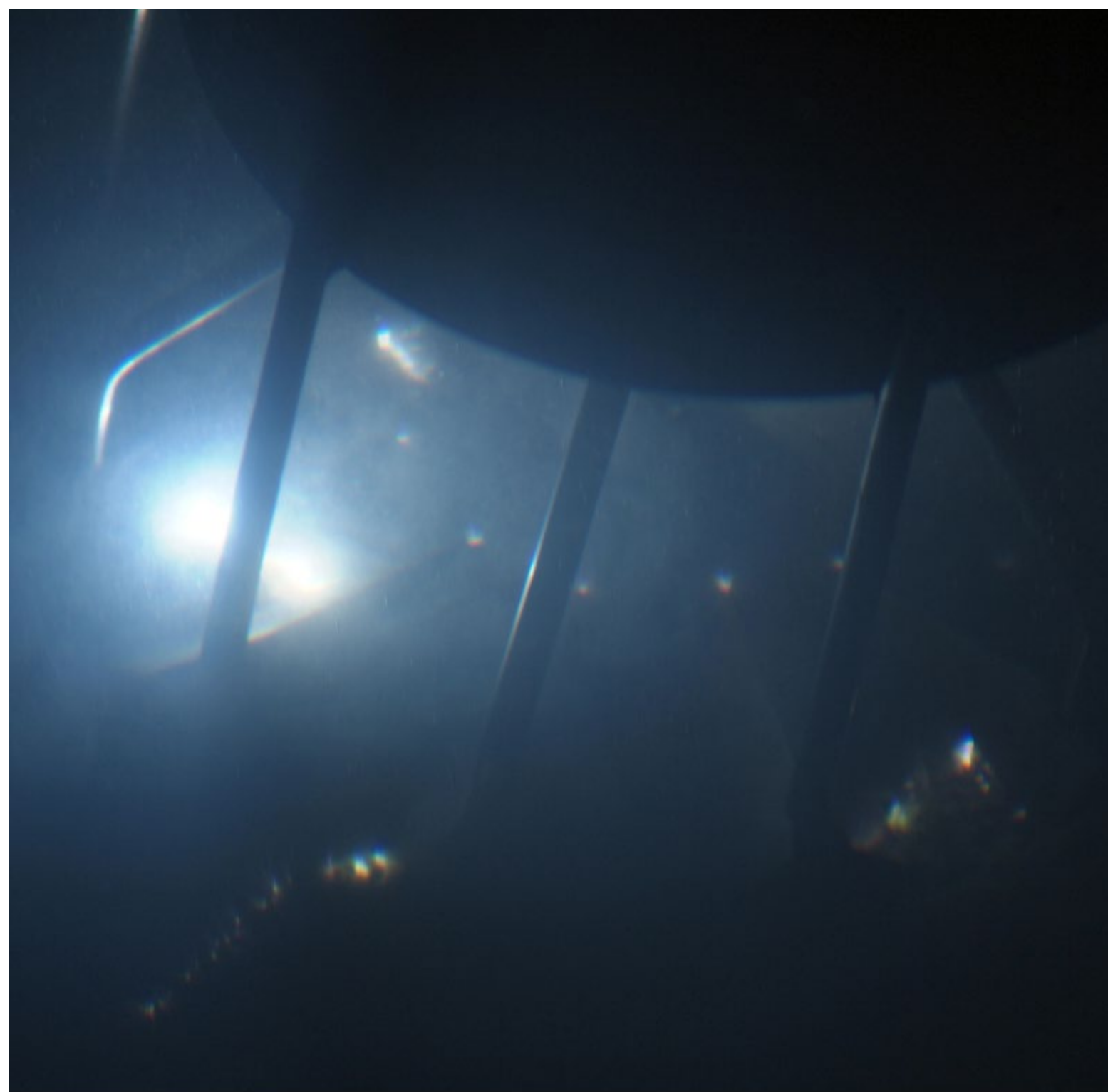




Scale removal with EIT – EVA

Erik Anders (erik.anders@tu-dresden.de | 0351/463-32540)



Motivation

While extracting thermal or drinking water, crude oil and natural gas from boreholes usually accompanying substances will be produced as well. The resulting corrosion effects and settled particles, so called scales, are a world wide and always occurring problem. Scaling mostly affects all underground and surface parts of the plant that come into contact with the fluid to be pumped. This results in a reduction in the production rate of a well, in part that the profitability of the production is endangered. To date, the options for eliminating scales and the problems associated with them are limited and sometimes very ineffective.

Methods

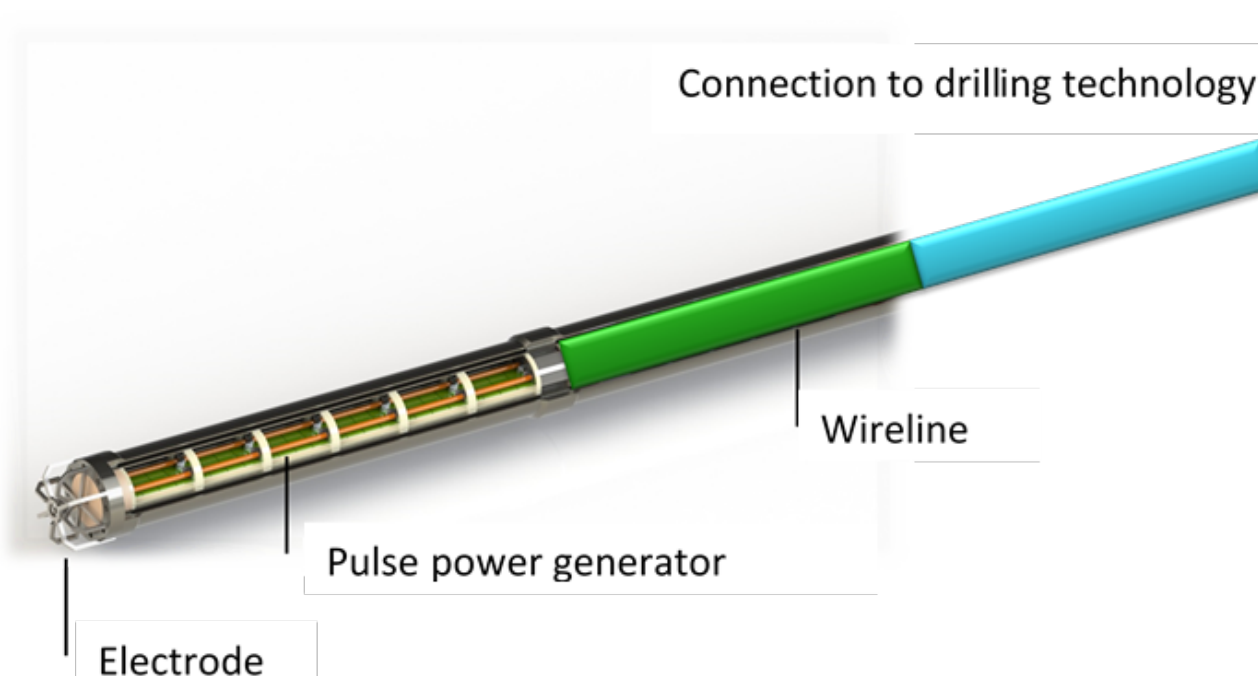
Usually scales do not only consist of a single mineral or material, which further reduces the effectiveness of the common removal procedures. The electric impulse technology (EIT) is a completely new approach to removing mineral scales. The EIT uses high-voltage discharges to loosen scales. This method was originally developed for deep drilling technology in order to drill in hard rock. In the project "Development and in-situ testing of an EIT drilling system (ISEB)" funded by the BMWi, a complete drilling system based on the electro impulse technology was developed. The electrical energy required to generate the high impulses is produced entirely in the borehole, making the drilling system compatible with conventional drilling voltage equipment.

Goal

The aim is to develop a laboratory prototype for a tool based on the EIT and to demonstrate the a complete and efficient scale removal from a casing sample. In addition to that, the growing process of scales is also examined. The focus of development is also to further develop the technology for generating the electrical impulses. This mainly applies to the pulse voltage generator. In special applications, such as deep drilling or work over procedures, temperatures of over 150 ° C, pressures of up to 500 bar and strong vibrations occur in practice. The diameter of the prototype will be 4.5 ". This means that voltages of several 100 kV are generated in an installation space of less than 100 mm in diameter, but must also be isolated from the housing.



<https://baso4scaling.wikispaces.com/>



Mitglied im Netzwerk von:



gefördert durch:



„EVA - Elektro-Impuls-Verfahren zur Aufwältigung eines mit Scale verengten Bohrloches“
(IGF-Vorhaben Nr. 21674 BR)

