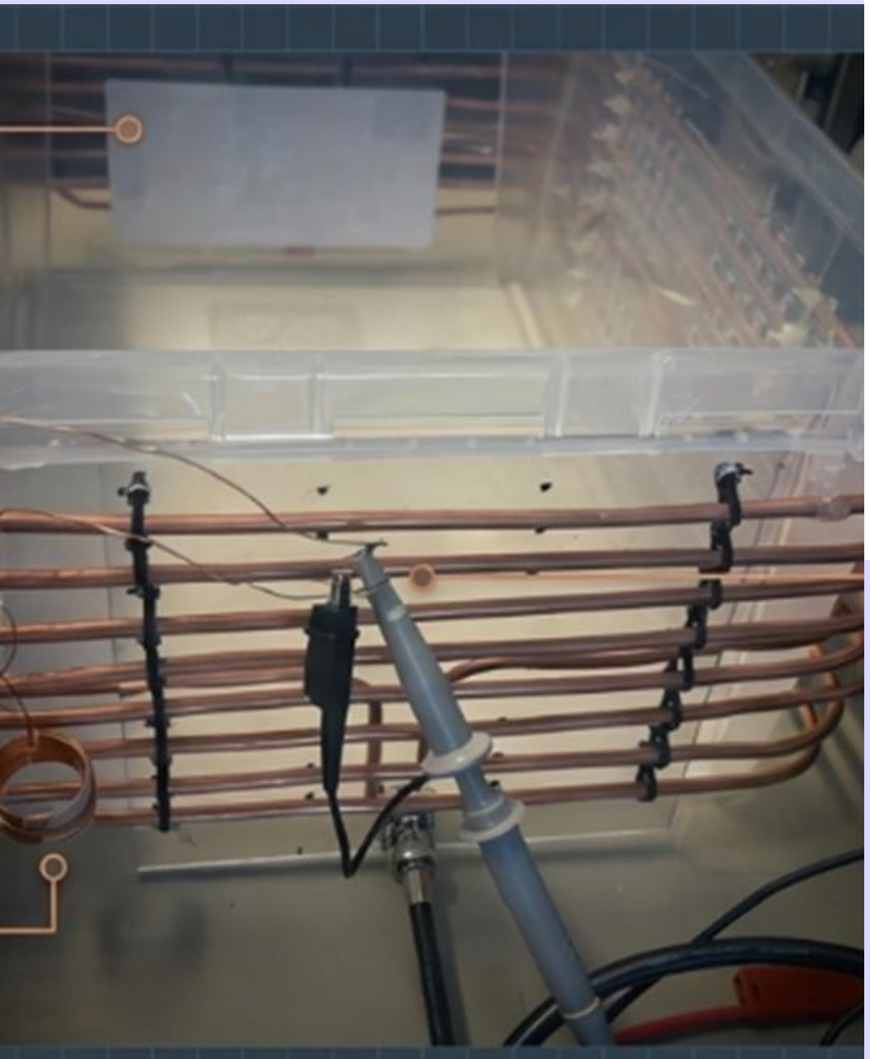
University of South-Eastern Norway

Inductive power link for a next-generation wireless neural implant



Purpose and aim:

Understanding neurodegenerative diseases requires long-term neural recordings in freely moving subjects. Continuous, high-resolution monitoring of brain activity during natural sleep could reveal critical biomarkers of cognitive decline in disorders like Alzheimer's and Parkinson's.

This master's project tackles the final obstacle in achieving a fully wireless brain-recording system for rodent pups: **inductive wireless power**. The goal is to design and implement a wireless power transfer system that delivers stable energy to a miniature implant.

Results and important findings:

Successfully developed an inductive wireless-power link delivering **stable energy** to the implant electronics (electrophysiology front end, FPGA, and Bluetooth module), eliminating the need for wired power. Key achievements include integrating a **receiver coil** and modifying the **animal cage** to accommodate the transmitter coil.

Pegah Haghshomar
277140@usn.no
SSIs

SINTEF

kian.azadmehr@usn.no, Baard.Nossum@sintef.no, Enrique.Escobedo-Cousin@sintef.no