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## Master thesis work: HIGH PERFORMING POLYMER COMPOSITES FOR MEDICAL APPLICATIONS



During surgery, radiation imaging is becoming commonly used in order to perform minimal invasive operations. When using X-ray, the staff is exposed to radiation that may be harmful to health. During such surgery, the surgical staff use radiation protection products, primarily made of lead containing vinyl plastics. Those products are heavy, thus exposing the wearer to risk of ergonomically problems.

**CHALLENGE:** Search and optimise the radiation protection per weight of material for surgical garments to produce the lightest possible radiation protection material.

The master thesis work includes searching for a suitable polymer matrix and to fill this matrix to a high content with heavy metals. This includes finding the optimal particle size and also to describe the distribution in the matrix. Important is also to study the flow properties that influence the mechanical properties. The research will be based on the broad experimental platform already established by Ten Medical Design AB. The project includes, literature search, laboratory work as well as analytical testing at CTH and Sahlgrenska University Hospital.

The master thesis work requires an interest in polymer materials and composites and a genuine competitive interest in meeting up with the challenge described. An appropriate background would be studies in chemistry or mechanical engineering.

Ten Medical Design AB is a small medical devices company in Göteborg with a special interest in radiation protection for medical applications. 10MD is a part of Sahlgrenska Science Park as an incubator company.

The master thesis work should preferably start late 2014 or beginning of 2015.

For more information, please contact:

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