Plastics in Radar Process Connections

Master thesis

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Emerson is a world leader in high technology radar solutions that make the world safer and more sustainable for people and the environment. We help our customers to make the right decisions, be smarter and find complete innovative solutions. Would you like to work with us?

PTFE (Polytetrafluoreten) plastics are commonly used in designing lenses and windows for microwave antennas and waveguides since it is relatively transparent to microwaves and highly resistant to chemicals.

A major drawback is however that it deforms over time when exposed to mechanical stress, so-called cold flow or stress relaxation.

This thesis work aims at improving the mechanical properties of PTFE windows and lenses by geometry, making use of/combining different material qualities and local material reinforcement. Solutions could be for example to sinter PTFE containing metal parts, high-performance thermoplastics or glass fiber reinforced PTFE.

Your work would include development of prototypes, supplier involvement, design and perform load tests, determining optimum material characteristics and evaluating material models for structural analysis.

Work will be performed on site at Emerson in Mölnlycke.


Contact person / tutor:

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