

SWISSto12 SA

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Lausanne, September 16th 2017

Open position for a Master student semester internship: Analysis and optimisation of Electro-less Copper plating growth dynamics on additive manufactured polymer substrates

Introduction:

SWISSto12 is a start-up company that spun off from the Swiss Federal Institute of Technology in Lausanne, (EPFL) in 2011. The company pioneers the development and commercialisation of radio frequency antenna, waveguide and filter products based on additive manufacturing.

The company specialises in product designs, which are then 3D printed in high-performance plastics or metals and subsequently metal plated through a proprietary process. This novel approach to manufacturing replaces traditional machining of metallic materials. In this context, SWISSto12 products feature drastic weight reductions, extended design flexibility and reduced production costs. SWISSto12 products are currently used in satellite telecommunications (on the ground, at sea, in the air and in space), other space applications, radar applications as well as test & measurement applications.

SWISSto12 is a highly innovative technology start-up company, which has already accumulated product validation with key industrial customers. The company is currently at the stage of qualifying its products against the specifications of aerospace and space applications with first cases where it has managed to move into pre-series and series production contracts in these markets. In parallel, the company's products are already commercialised for use on the ground and for Test & Measurement applications. The company continuously invests in the improvement and diversification of its products.

The master student will be given the opportunity to work on the analysis and optimisation of the Electro-less Copper plating growth dynamics on additive manufactured polymer and metal substrates. This work will involve mainly chemical laboratory work as well as data analysis, sample characterization (X-Ray measurements, SEM measurements, chemical analysis) as well as literature research.

Functions:

- Perform literature survey of electro-less plating.
- Contribute to the operation of a small prototype electro-less Copper plating line for additive manufactured substrates in SWISSto12's chemical laboratory.
- Explore the parameter space of the metal plating process and find optimum solutions with regards to Copper plating growth rate, grain size and surface roughness.
- Work with mechanical and chemical engineering colleagues to definite and execute test plans on test coupons or RF representative samples.
- Perfect existing fluidic techniques used to circulate the metal plating solutions through the complex additive manufactured structures in order to plate surfaces with difficult access.
- Occasionally, you will be asked to participate in overall tasks and services inherent to a small company.

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Qualifications, experience and competencies:

- Master student at EPFL, preferably in Chemistry or Material Science.
- Preferably some experience in chemistry laboratory work.
- Interest towards advanced coatings and surface treatments.
- Ability to write technical and scientific documentation.
- Communicating effectively, excellent relational skills and ability to work in a team with different professional and cultural backgrounds.
- Language: Full proficiency in French or English is mandatory, a good knowledge of German is a strong asset.

Working conditions and contact:

Start date: asap
Duration: 6 months
Occupation: Full time

An application containing a CV, a motivation letter, if possible three references, a copy of your important diplomas and grades can be sent by mail to: info@swisstto12.ch with reference to “Master student semester internship position”.