



University  
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Department  
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Basel, 10 September 2018

**Subject: Letter concerning the opinion of the master thesis of Zakaria Azdad**

To whom it may concern,

I supervised Mr Zakaria Azdad during his master thesis from February until the end of August 2015. During this period his work was devoted to performed laboratory works using vacuum chamber. More precisely, it was deposition of thin films using magnetron sputtering and their analyses using several characterizations techniques like X-ray Photoelectron Spectroscopy, Spectrophotometry, Spectroscopic Ellipsometry, Secondary Electron Microscopy and Atomic Force Microscopy. Specifically the idea of the project was to deposit thin ZrO<sub>2</sub> film and do a complete characterizations.

Mr Azdad managed to achieve this goal by performing himself the experiments and all the analyses. During the project, he presented the results to our partner Fusion for Energy. For this he planned and realized the experiments and analyses on time. He learned to present results appropriately. Using several characterizations technique, he used his scientific knowledge to dig into the results and analyzed them in a manner that is required for a PhD student.

He was able to adjust quickly to the new environment, he learned all new equipment rapidly and afterward he was able to pursue his project in a motivated manner. He was hard-working, diligent and capable of running many activities at the same time and he managed to conduct his tasks appropriately, bringing a lot of new scientific ideas.

Concerning his ability to work in a team, he adapts himself rapidly to our small team and shows a lot of initiative that requests good supervision and discussion. For all this reason I strongly support Mr Zakaria Azdad for a PhD position.

Scientifically his work done in his master thesis was recognized by a scientific paper he wrote himself and which is under review in Nature Scientific Reports.

Yours sincerely,

Dr Laurent Marot

Senior Scientist