Contribution ID: **309** Type: **Oral Presentation**

# Growth and characterization of RF Magnetron Sputtered NbN and ZrN thin films

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## Abstract content <br>   (Max 300 words)

Thin hard films have been used widely as protective coatings under harsh environments. In this work, the effect of sputter power and substrate bias on the microstructure and subsequently on the elastic constants of transition metal nitride thin films is investigated. NbN and ZrN thin films have been deposited on etched (100) Si substrate at sputter powers ranging from 75W to 200W using RF magnetron sputtering at various substrate bias. The microstructure of the films have been determined using a combination of x-ray diffraction (XRD) and transmission electron microscopy (TEM) and will be correlated to the deposition conditions. For surface Brillouin measurements the surface topography of these thin films will be examined by scanning electron microscopy (SEM) and atomic force microscopy (AFM). A time of flight spectrometer for heavy ion detection (HI-ERD) thin film analysis was used to measure the films' thickness and stoichiometry for the various deposition conditions. Theoretical modelling on the basis of the surface Green's functions has been used to predict and compare surface Brillouin spectra with the experimental spectra for select thin films.


## Apply to be<br> consider for a student <br>   award (Yes / No)?

Yes

## Level for award<br> (Hons, MSc, <br>   PhD)?

PhD

## Main supervisor (name and email)<br>and his / her institution

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## Would you like to <br> submit a short paper <br> for the Conference <br> Proceedings (Yes / No)?

No


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