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## Optical and mechanical characterization of ion-beam-sputtered MgF<sub>2</sub> and AlF<sub>3</sub> thin films

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GW detector highly reflective coatings are obtained by alternate layers of material with different refractive indexes. Brownian thermal noise associated with the coating stack, limits the mid-frequency region of the GW detector designed sensitivity. Thermal noise reduction can be achieved minimizing the overall thickness of the stack, increasing the refractive index contrast. Fluoride's coatings, largely used in UV application, show the lowest measured values of refractive index, and they can be interesting for future GW detectors as low index material. The first optical and mechanical characterization of ion-beam-sputtered MgF<sub>2</sub> and AlF<sub>3</sub> thin films has been performed, starting the investigation on the possible utilization of fluorides in future GW detectors. Methods and results will be described, effects of post deposition thermal treatments will be presented.

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