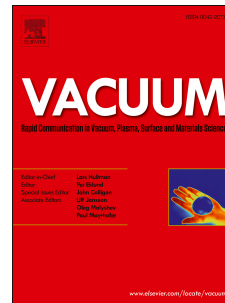


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# Study of soft x-ray optical properties of niobium carbide (NbC) thin film in 6 – 15 nm wavelength region

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## Abstract:

In the present study, the optical constants of niobium carbide (NbC) in soft x-ray wavelength region of 6-15 nm have been determined using angle dependent x-ray reflectivity measurements. Experimentally measured optical constants ( $\delta$  and  $\beta$ ) are compared with tabulated values of Henke et al. The  $\delta$  values are found 5 to 30 % lower than the bulk value whereas deviation in beta values is around 5 to 38 %. To the best of our knowledge, the present study gives the first reported experimental values of optical constants for niobium carbide in 6-15 nm wavelength range. The knowledge of experimentally measured optical constants of NbC will help in practical calculation of optical devices.

**Key words:** Soft x-ray, Optical constants, X-ray reflectivity, Multilayers, Beam line.

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