

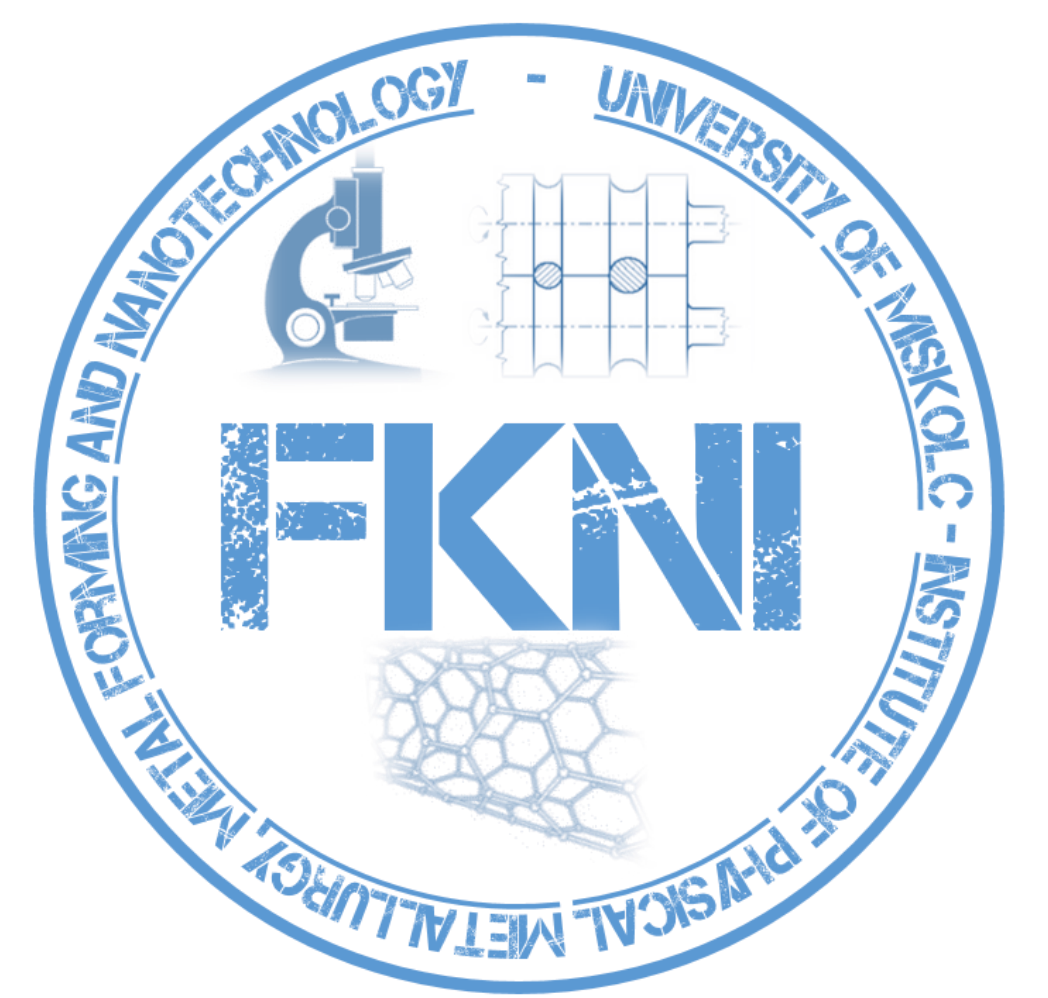
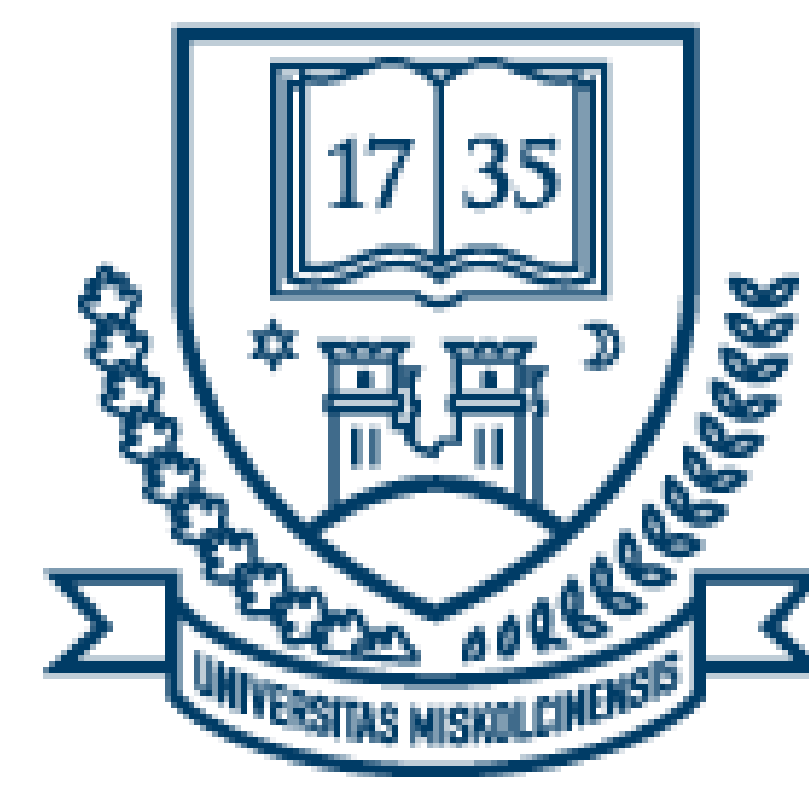
ADVANCED NON-DESTRUCTIVE METHODS FOR RESIDUAL STRESS AND ANISOTROPY DETERMINATION FOR CRYSTALLINE MATERIALS

Máté Sepsí, Márton Benke, Valéria Mertinger

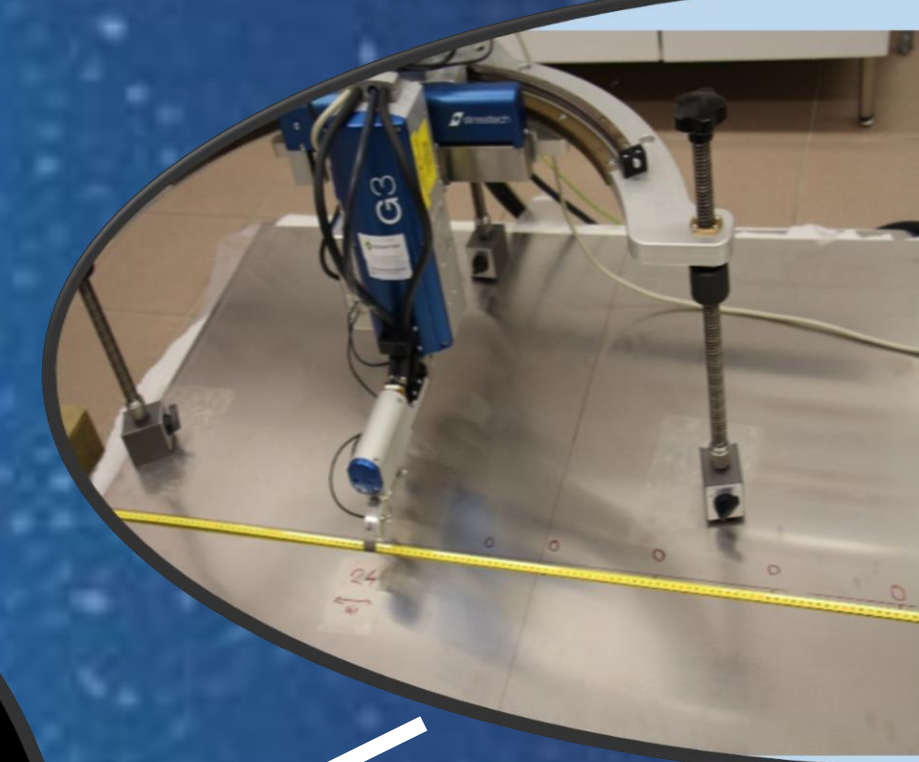
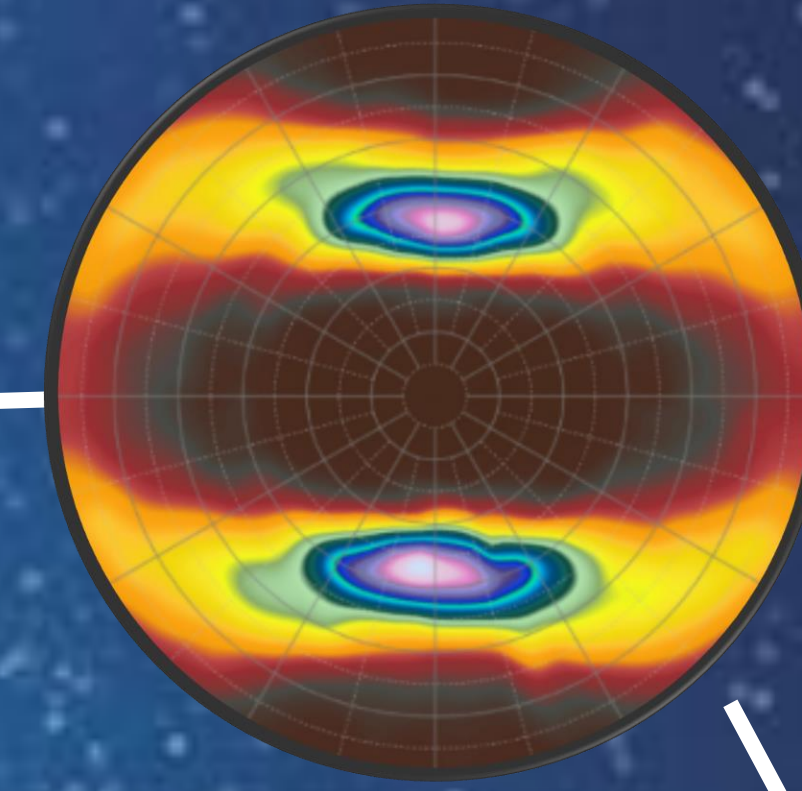
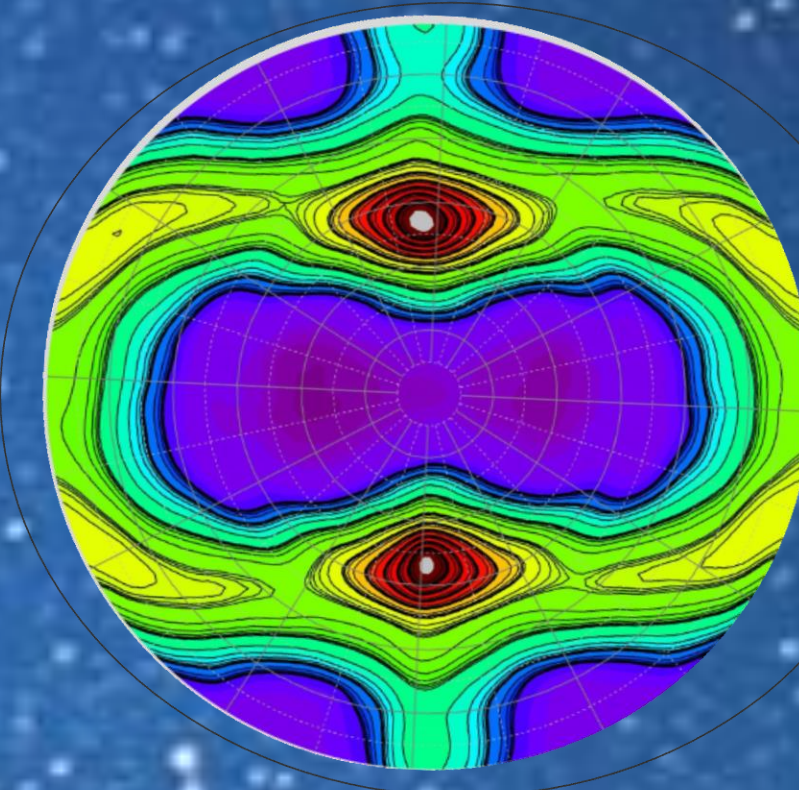
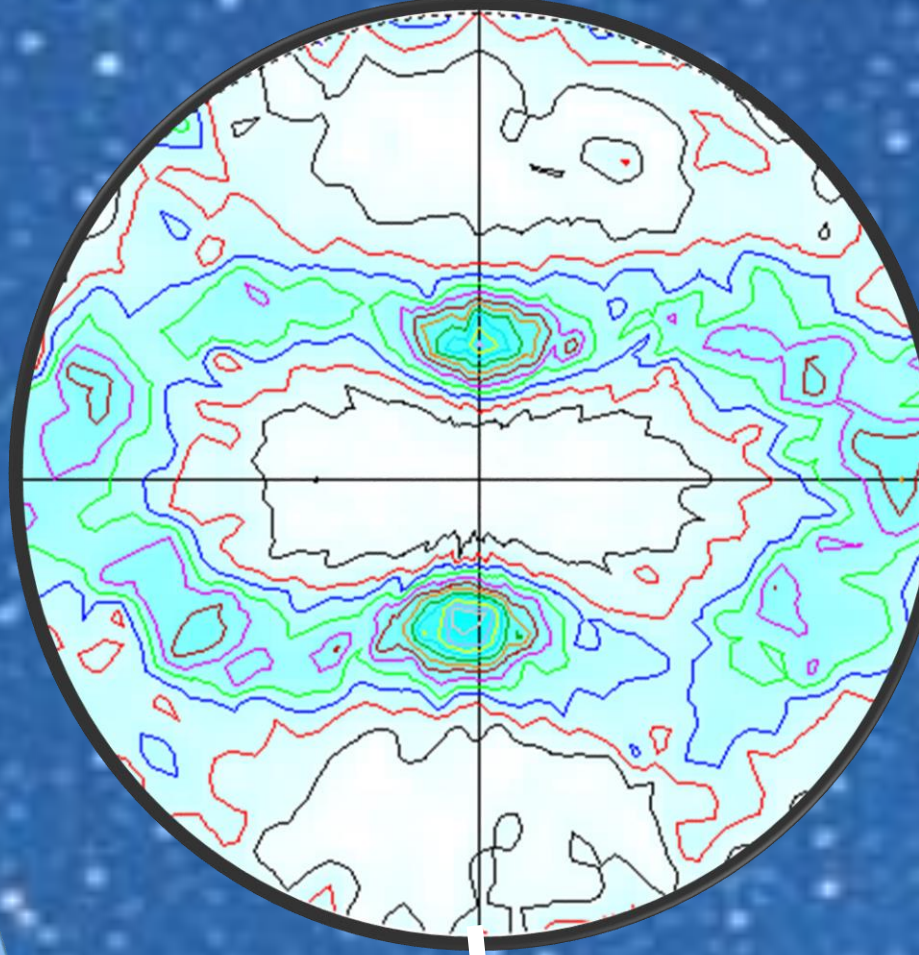
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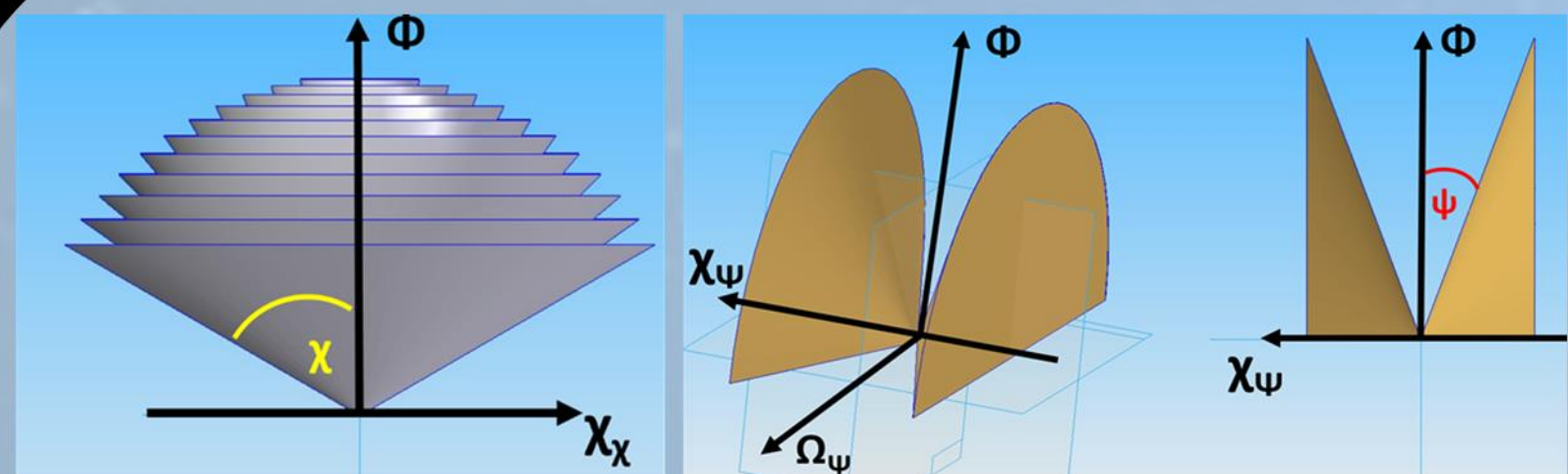
Measurement and calculation methods for non-destructive stress tests were developed to determine the identical crystalline plane series distribution in centreless and in the conventional diffractometers so an advance anisotropy measurements techniques are invented. The methods were validated for CHI, OMEGA and modified PSI modes for aluminium silver and steel materials. The same samples were measured and the identical results were determined by conventional and centreless diffractometers. The new methods were also used for large component to validate the non-destructive nature of techniques. It is sufficient to use for valuable and unique component not only in the automotive industry or archeometry but also in the space applications.



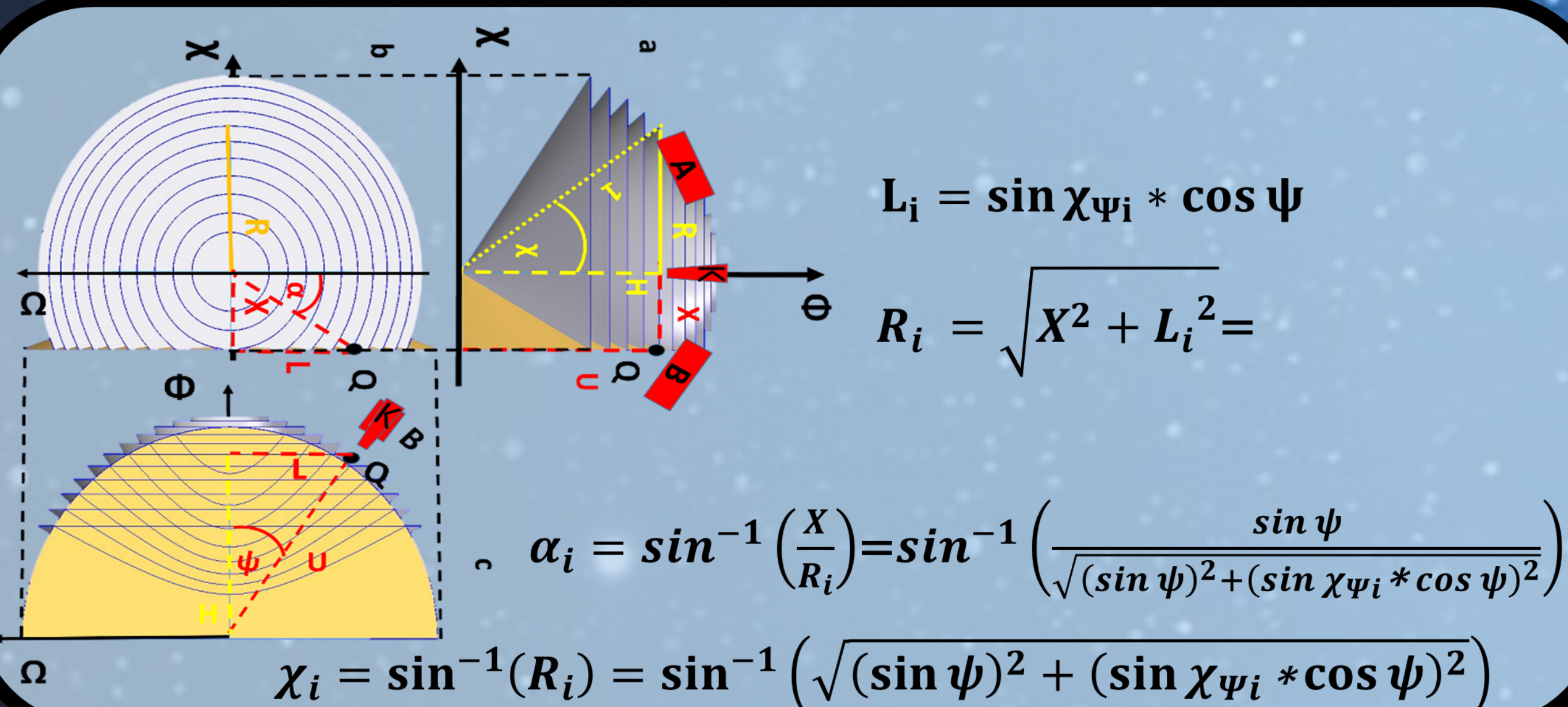
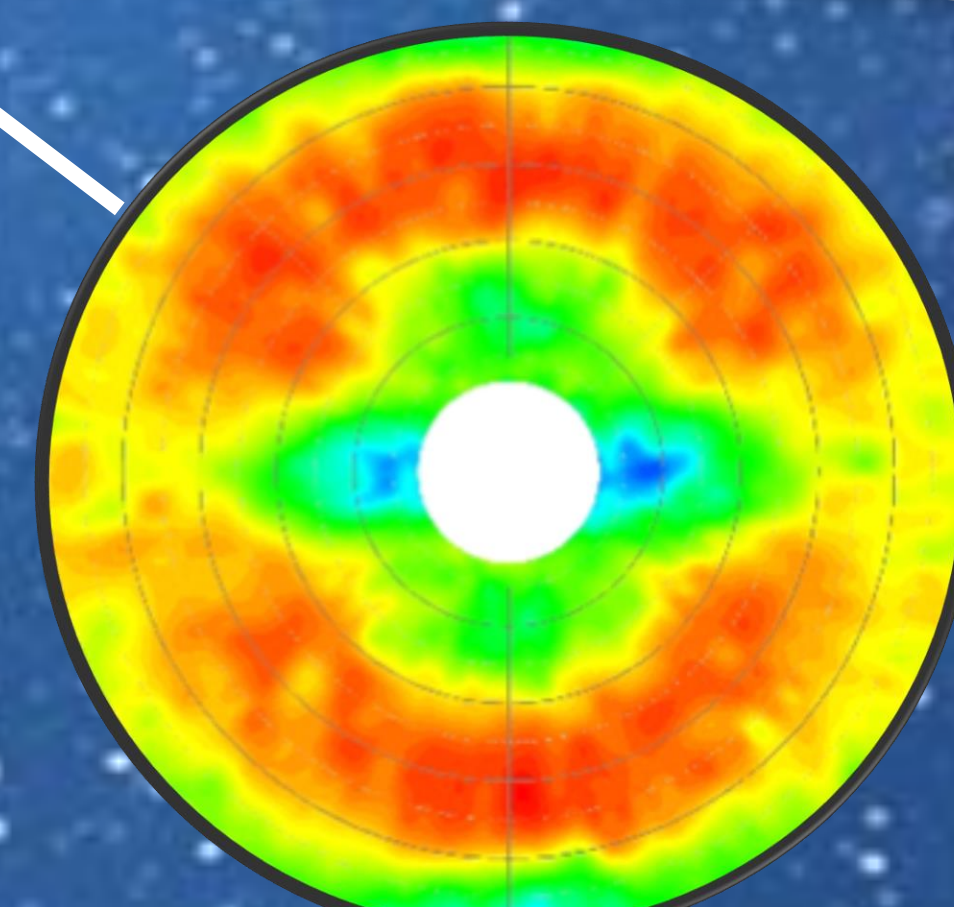
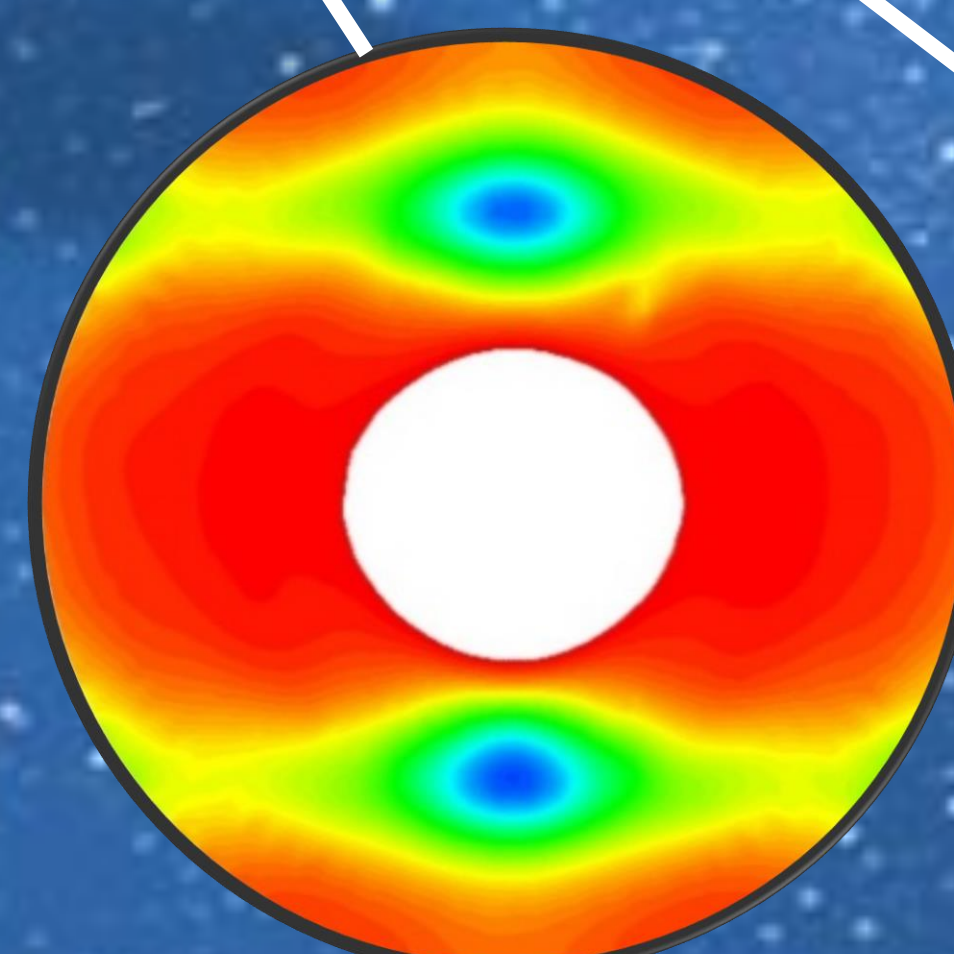
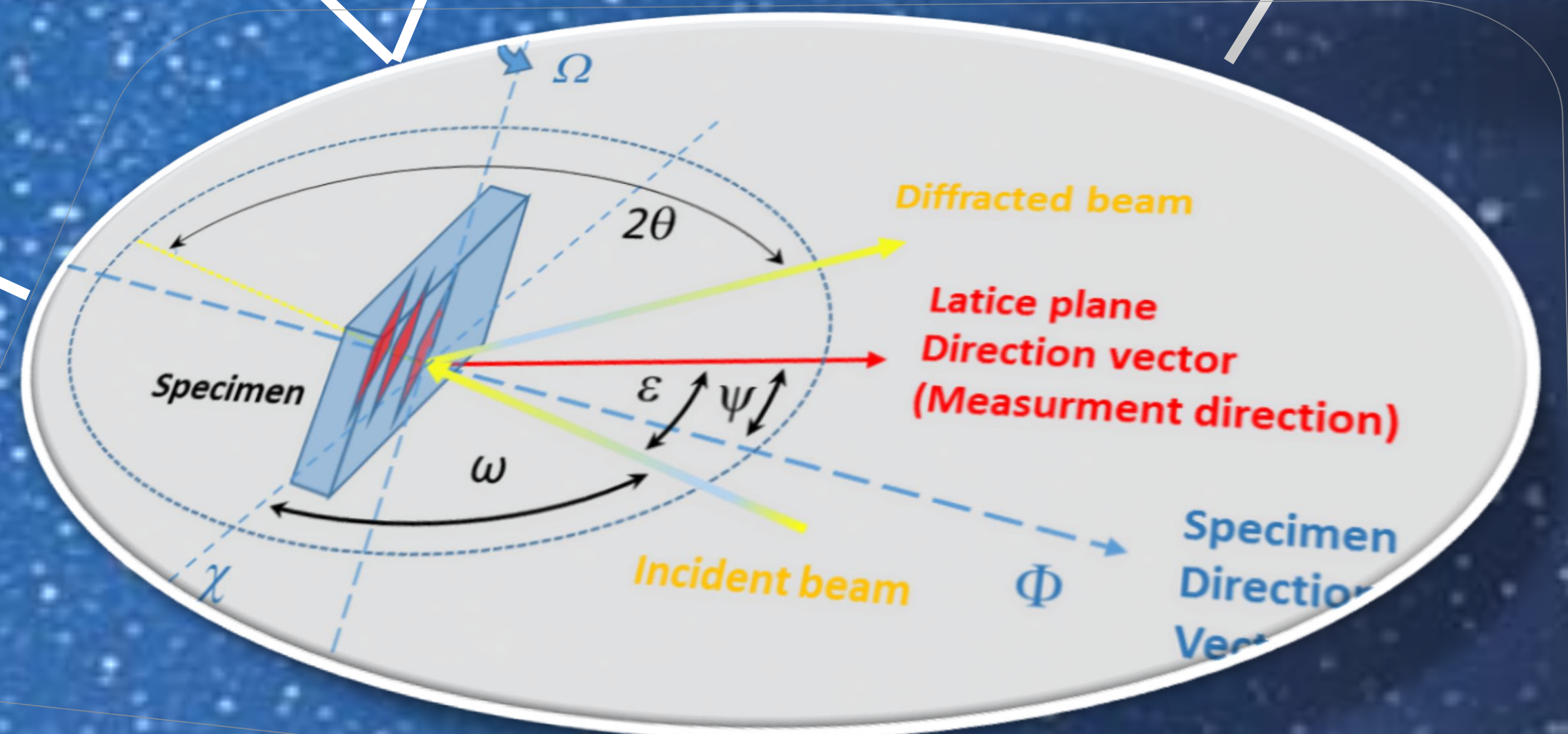
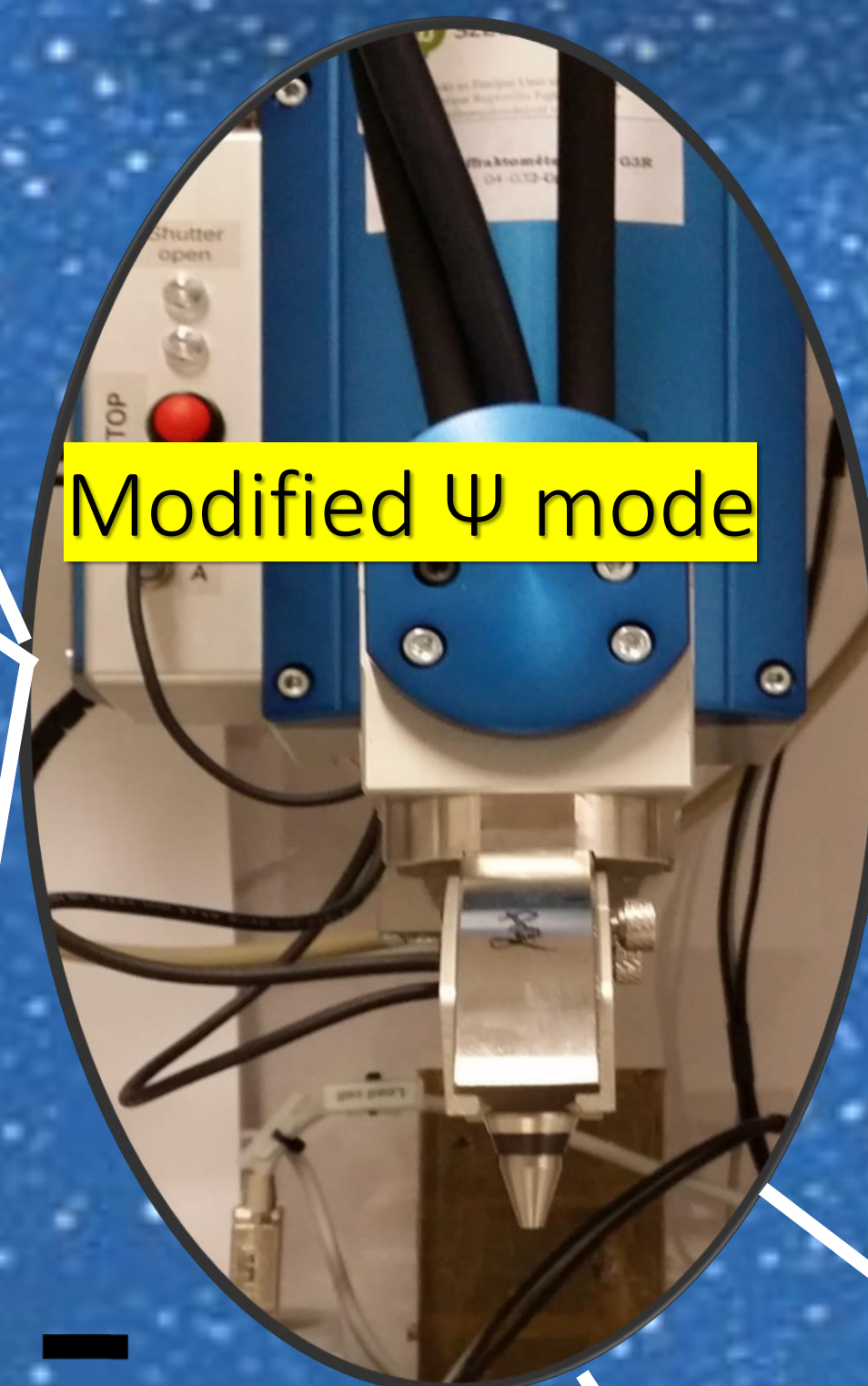
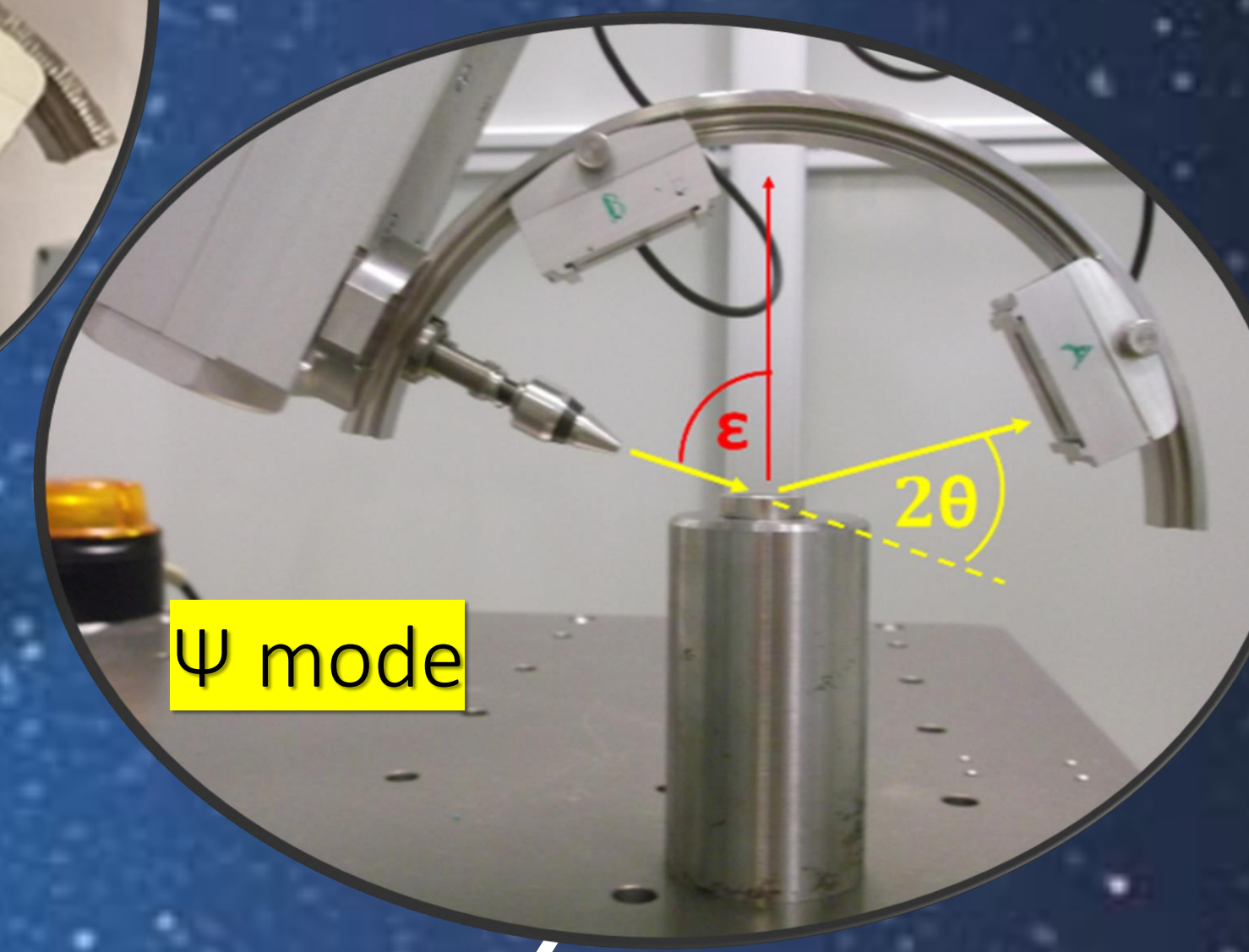
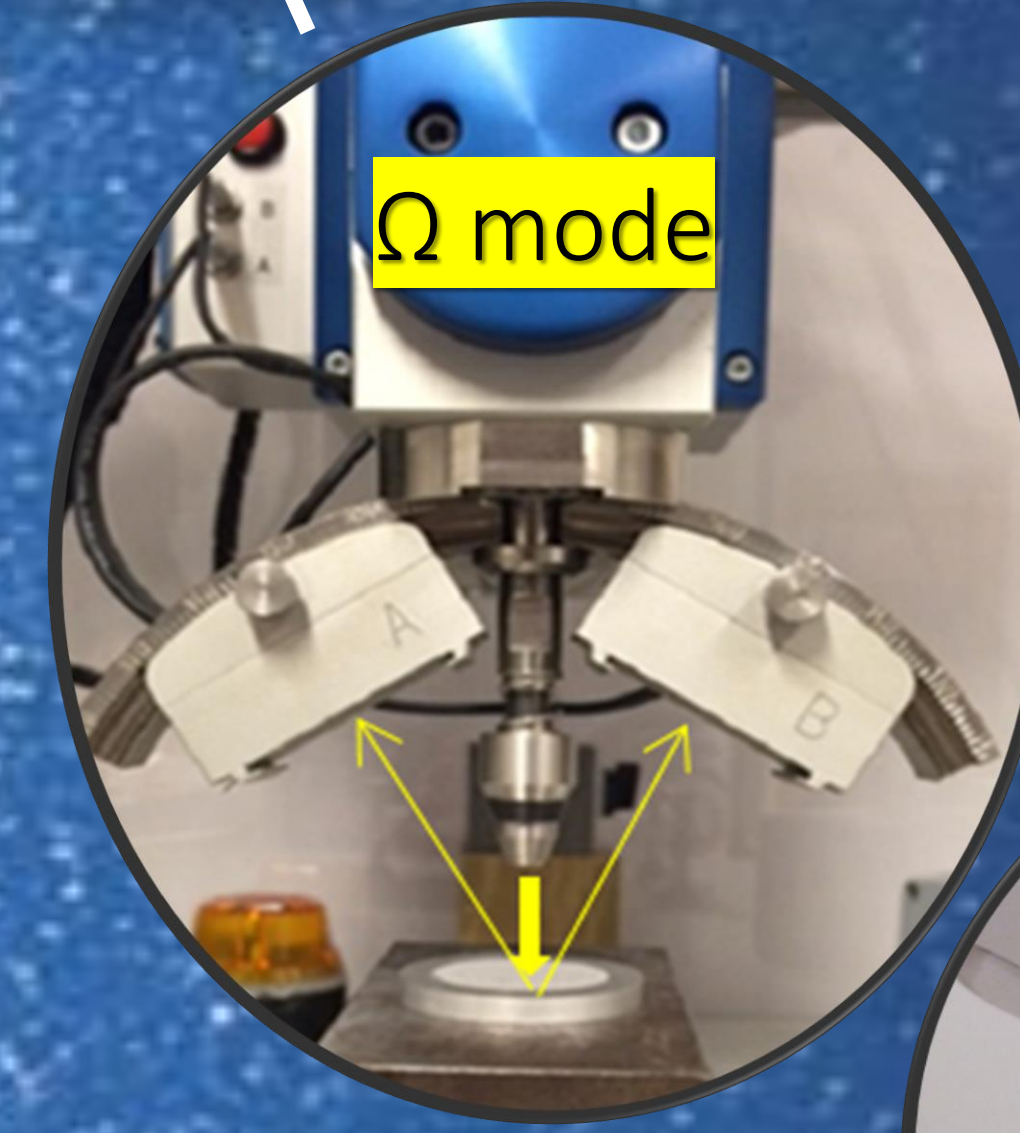
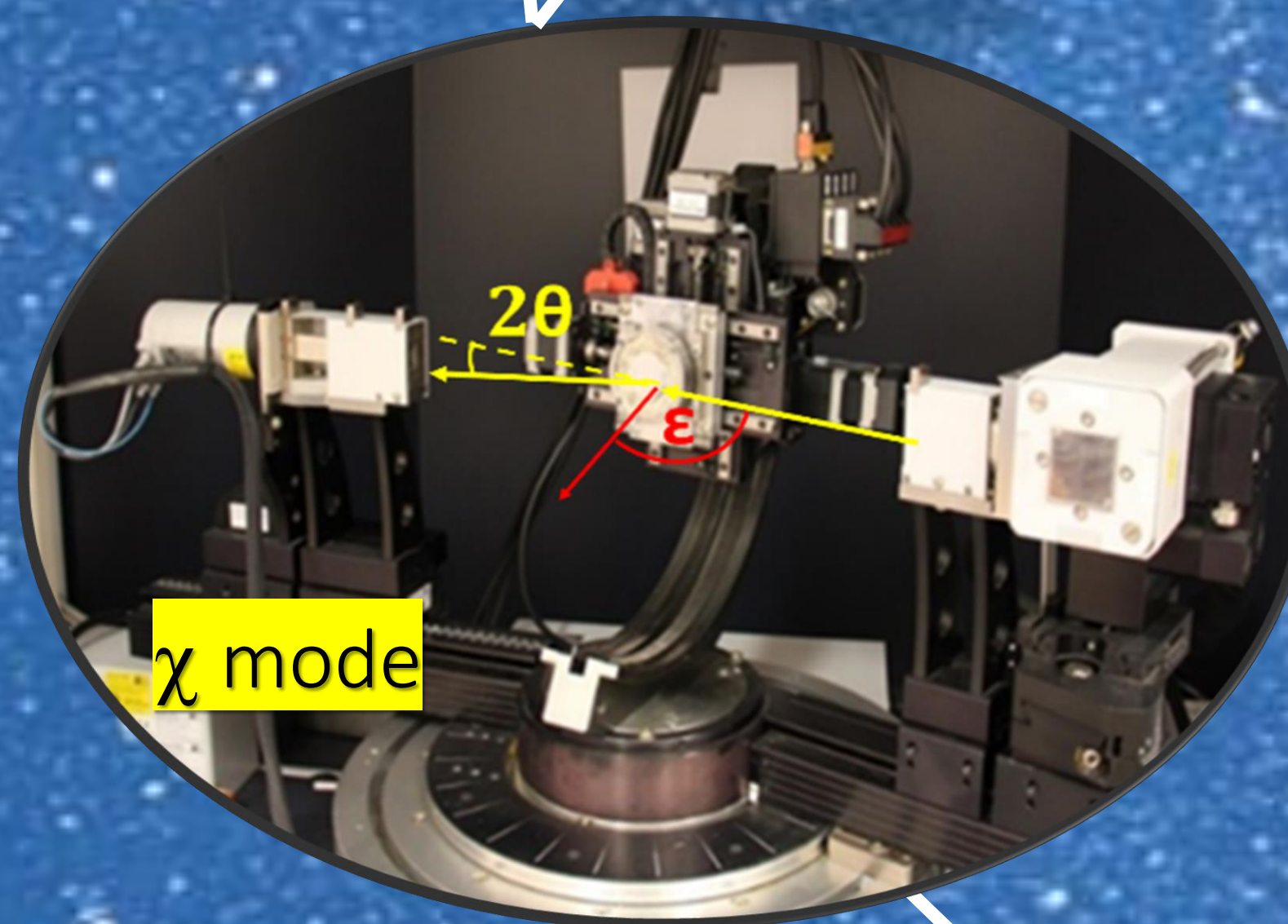
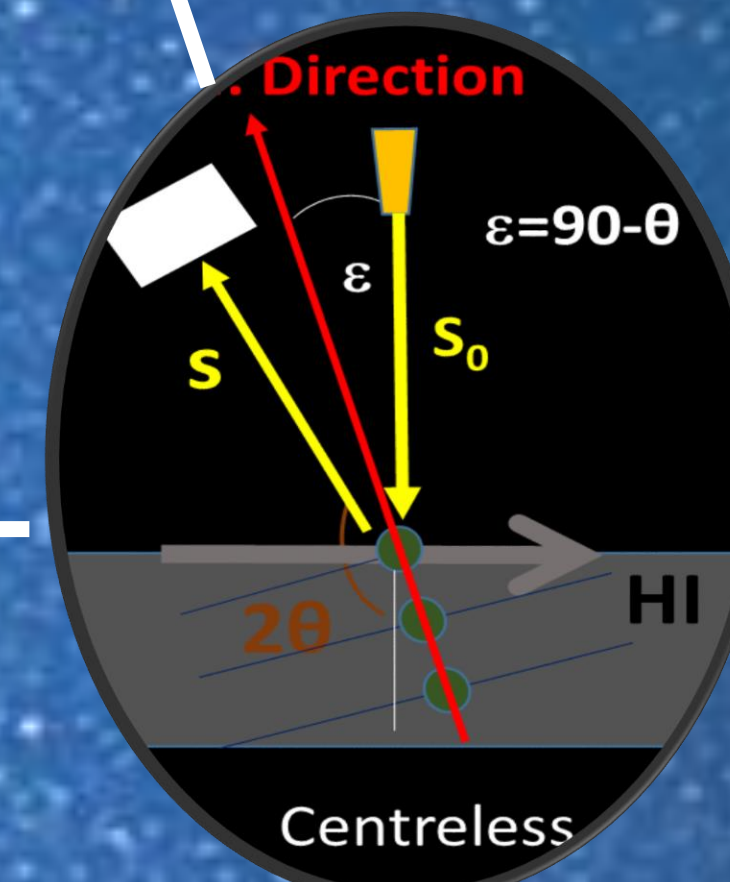
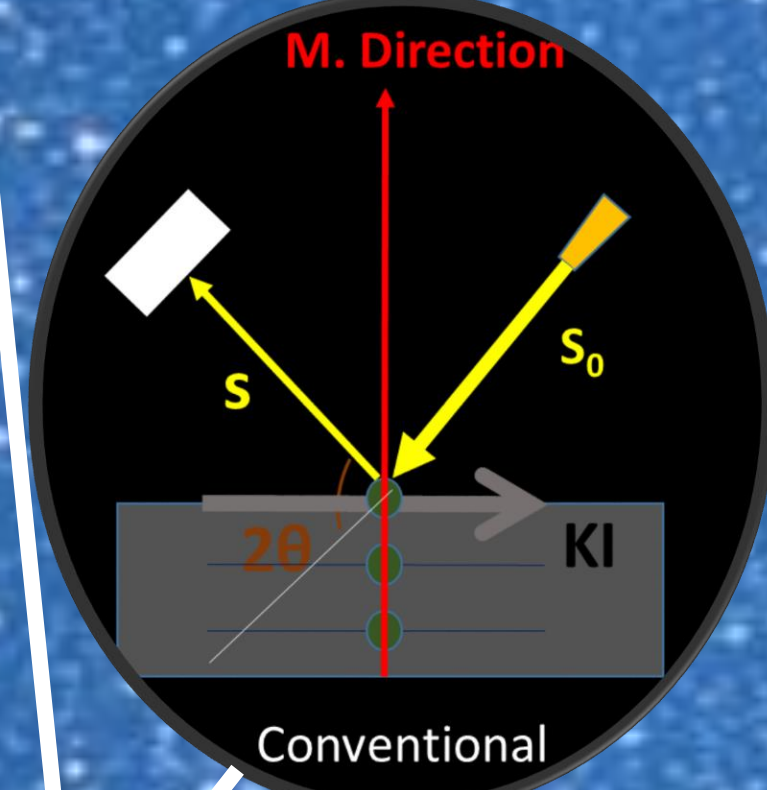
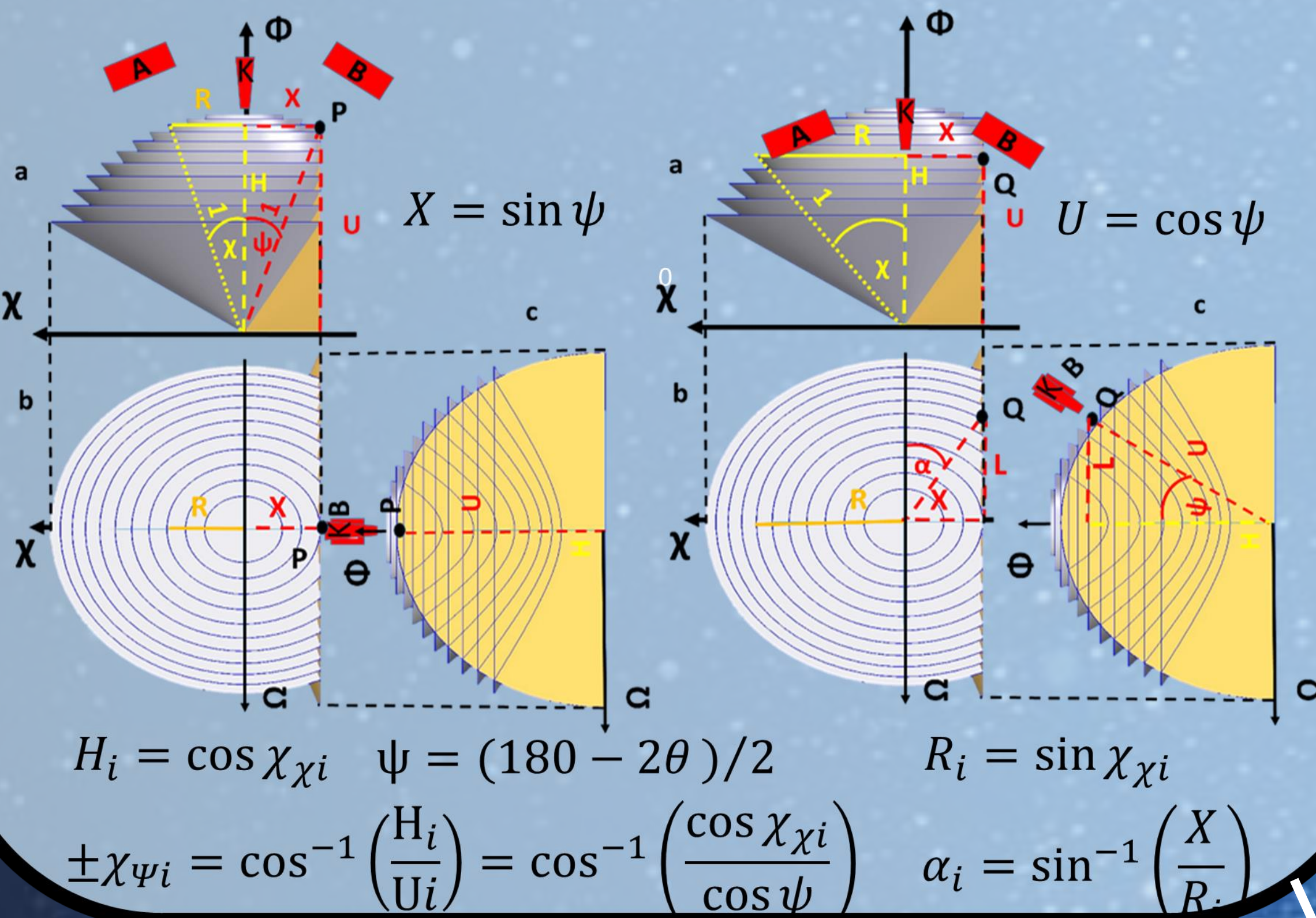
$$\varepsilon = (180 - 2\theta) / 2$$

$$\chi_i = \pm \omega * i \pm \varepsilon$$

$$\chi_{max} = \theta$$



$$\psi = (180 - 2\theta) / 2$$



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