

# FOUR-BOUNCE X-RAY MONOCHROMATOR FOR HIGH-RESOLUTION X-RAY DIFFRACTION



## CUTTING EDGE TECHNOLOGY

A new type of four-bounce X-ray monochromator with high transmittance of the  $K\alpha_1$  radiation component for high-resolution angle-dispersive X-ray analysis (high-resolution X-ray diffraction), which reliably filters the  $K\alpha_2$  radiation component in addition to the  $K\beta$  component.

The four-bounce X-ray monochromator comprises two monolithic channel-cut monochromators from the same material (germanium single crystal or silicon single crystal) which are adapted to use two different diffraction crystallographic planes (111) and (220), and where the second monolithic channel-cut monochromator is rotated relative to the first monochromator by an angle equal to the difference of the Bragg angles of the diffraction crystallographic planes (220) and (111).

## COMPETITIVE ADVANTAGE

- higher transmittance for high-resolution X-ray diffraction compared to Bartels monochromator, while effectively suppressing the  $K\alpha_2$  component and maintaining the original direction of propagation of the X-ray beam.

## TOP TEAM OF INVENTORS

The inventors of the technical solution are internationally recognized experts in the field of implementation of progressive X-ray methods for complex structural characterization of materials and nanostructures, and the development of new elements of X-ray optics:

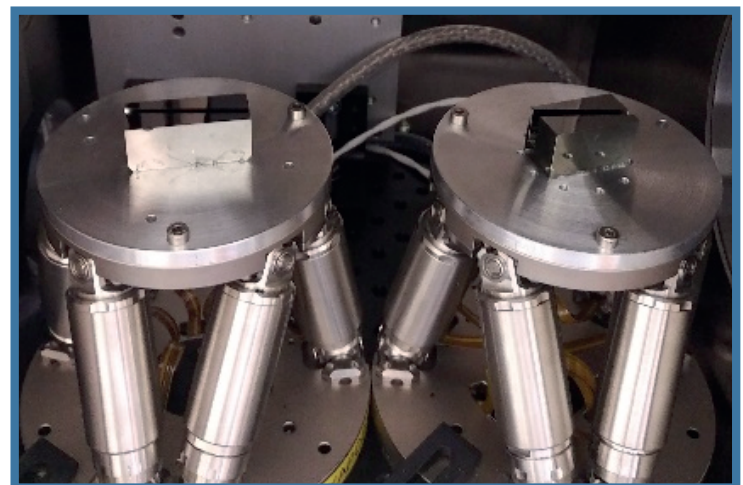
Ing. Matej Jergel, DrSc., Mgr. Peter Nádaždy, PhD. and Dr. Rer. Nat. Peter Šiffalovič, DrSc.

## STAGE OF DEVELOPMENT & PROTECTION

- TRL 7 - prototype demonstration in operational environment,
- SK utility model application.

## INDUSTRIAL APPLICABILITY

- high-resolution X-ray diffraction measurements, where the main requirement is a high output intensity of the X-ray beam rather than maximum resolution. This is a common case of measuring nanostructures for various applications in (opto)electronics, spintronics, sensors, biomedicine, etc.



WE ARE LOOKING FOR A PARTNER FOR LICENSING/SELLING THE TECHNOLOGY.

For more information please contact:



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