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Born in 1959,

He graduated from faculty of engineering of Kyoto University in 1983, graduated from department of physics (master course) of Toyama University in 1989 and graduated from department of synchrotron radiation science (doctor course) of The Graduate University for Advanced Studies (SOKENDAI) in 1997. He was post-doctoral fellow of Japan Science and Technology Agency (JST) at National Institute of Metrology in 1996, research associate of faculty of engineering of The University of Tokyo in 1998 and research assistant of graduate school of engineering of The University of Tokyo in 2007.

He developed an energy-tunable X-ray polarimeter with a phase retarder and measured X-ray spectra of natural linear birefringence and dichroism simultaneously [1,2] for the first time (1995), developed two-quadrant X-ray phase retarder system [3] compensating for the off-axis aberration of the transmission-type X-ray phase retarder, measured X-ray spectra of natural circular birefringence and dichroism simultaneously for the first time (2000) and developed four-quadrant X-ray phase retarder system compensating for both the off-axis and chromatic aberrations [4] to establish the technology for controlling the polarization state of X-rays and measuring X-ray spectra dependent on the polarization state of X-rays (2001). Since the Kramers-Kronig relations have been confirmed between the real and imaginary parts of electric susceptibility of the above-mentioned polarization dependent spectra, the reliabilities of data are extremely high.

He also extended the Takagi-Taupin X-ray dynamical diffraction theory for n-beam cases for n = 3, 4, 5, 6, 8, 12 for the first time taking into account the polarization coupling and developed computer algorithm numerically to solve the theory (2003) resulting in an verification of the theory by comparing X-ray pinhole topographs experimentally obtained at SPring-8 using the four-quadrant phase retarder system and computer-simulated for all cases of n = 3, 4, 5, 6, 8, 12 (2003-2012) [5-11]. Furthermore, he derived an n-beam Takagi-Taupin dynamical theory applicable to an arbitrary number of n (2008). His most recent research theme is giving the final solution for the phase problem in protein crystal structure analysis by using the new n-beam dynamical diffraction theory.

In 2019, He published two papers [12,13] in which experimentally obtained and computer-simulated eight-beam and 18-beam pinhole topographs were reported. The computer simulations were performed by fast Fourier transforming the X-ray amplitudes obtained by solving the Ewald-Laue dynamical diffraction theory (E-L FFT simulation). This method was reported by Kohn & Khikhlukha (2016) and Kohn (2017) for the first time for a symmetric six-beam case. Okitsu *et* *al*. [12] reports the efficiency of the E-L FFT simulation also for obtaining X-ray diffraction intensities in an asymmetric *n*-beam case with an arbitral-shaped crystal. [13] reports its efficiency for a non-coplanar case in which *n* reciprocal lattice nodes are not on a circle in reciprocal space. This is the case in general for a protein crystal. Then, he is prepared to calculate intensities of X-rays diffracted from a protein crystal in which *n* X-ray beams are simultaneously strong.

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