A New Rightful Gapless Dispersion Surfaces instead of the Conventional Erroneous Gappy Dispersion Ones in the Dynamical Theory of X-ray Diffraction

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By use of some roughly indefinable approximate relations in almost all previous works, the hyperbolic dispersion surfaces of the central proper quadrics have been erroneously derived from reduction of the degree of the bi-quadratic equation that has been defined by the existence of the solutions in the homogeneous simultaneous linear propagation equation with two unknowns. Moreover, neglecting the high symmetry of the hyperbola, its both branches have been substituted as the asymmetric surfaces composed of a pair of a branch of the hyperbola and a vertex of the ellipse, without the presentation of reasonable evidence. Based upon the same dispersion surfaces equation, a new original gapless dispersion surfaces could be rigorously introduced without crude omission of even a term in the bi-quadratic equation based upon usual analogy with the band theory of solid as the close approximation to the truth. The report[1] is a part of the extension[2−4] of our previous works[5,6].

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