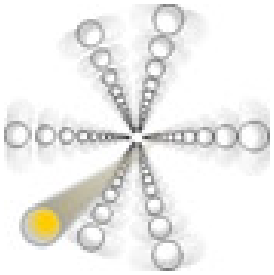

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Stark Effect for He-like Ions Planar Channeled in a Crystal

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The channeled ion interacts with the continuous planar electric field. This electric field not only defines the trajectory of the ion but also acts on the electrons of ion. Hence, electronic energy levels are shifted and are split due to Stark effect. The influence of Stark effect depends on the position of ion in the planar channel.

In this work the influence of trajectory-dependent Stark effect on electronic energy levels is analyzed for relativistic He-like Fe ions. The calculations for the inhomogeneous electric field of crystallographic planes are carried out in the first and second orders of the perturbation theory. The first order is defined by the gradient of strength of electric field and it is proportional to relativistic factor. The main contribution to the second order comes mainly from the second degree of strength and this order is proportional to the second degree of relativistic factor.

Hence, the second order for relativistic channeled ion having several electrons can play the significant role in the electronic states forming. This situation differs from the case of hydrogen-like ions, where electronic states is defined by the first order. This fact influences on both the excitation of channeled ion and radiation from the excited ion.

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