

**THREE-DIMENSIONAL ELECTROMAGNETIC CASCADE  
SHOWER IN THE ATMOSPHERE TAKING INTO ACCOUNT  
OF THE MULTIPLE SCATTERING THEORY CONSTRUCTED  
BY PARTIAL WAVE CALCULATION**

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Recently, Fernandez-Vaera et.al. have reviewed the multiple scattering theory  
based on the partial wave calculation. We calculate the three-dimensional  
developments of the electromagnetic cascade shower by using this theory in  
the atmosphere, comparing it with corresponding ones based on the Moliere  
theory for primary energy of  $10^{15}$  eV to  $10^{18}$  eV.