

Recently (arXiv:1101.5503v1) we have characterized the second-order symmetric Lorentzian manifolds (i.e., those which satisfy $\nabla^2 Ric = 0$). In particular, all the complete simply-connected non-locally symmetric ones constitute an extension of the Cahen-Wallach family of (n -dimensional) plane waves. Here, we will sketch the techniques to obtain both, local and global results.