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Structural and spectroscopic characterization of double perovskites $La_2Co_{4/3}M_{2/3}O_6$ (M= V, Nb or Ta) and $La_{4/3}Bi_{2/3}Co_{4/3}Ta_{2/3}O_6$ V.C. FUERTES, M.C. BLANCO, D.G. FRANCO, INFIQC, UNC, Córdoba, Argentina, J.M. DE PAOLI, CNEA-CAB, Bariloche, Argentina, F.P. DE LA CRUZ, N.E. MASSA, LANAIS EFO-CEQUINOR, UNLP, CP 962, 1900 La Plata, Argentina, R.E. CARBONIO, INFIQC, UNC, Córdoba, Argentina — We report the synthesis of the title compounds and the refinement of their structures using Rietveld analysis of powder XRD data. All belong to the monoclinic space group $P2_1/n$. While the crystallographic formula can be written as $La_2(Co)_{2a}(Co_{1/3}M_{2/3})_{2b}O_6$ for M= Nb or Ta, indicating the highest possible order for the cations, we find $La_2(Co_{2/3}V_{1/3})_{2a}(Co_{2/3}V_{1/3})_{2b}O_6$ for V replacement indicating the highest disorder configuration. The cell volume for La₂Co_{4/3}M_{2/3}O₆ decreases as the ionic radius of the M⁵⁺ cation decreases. These compounds were previously shown to be ferrimagnetic with Curie temperatures in the range 60-70 K. Since the incorporation of cations with the sp hybridized lone pair can potentially induce ferroelectric properties, we also synthesized La_{4/3}Bi_{2/3}Co_{4/3}Ta_{2/3}O₆ where we found a partial cations disorder. Crystal and magnetic structures refined with powder neutrons diffraction measurements as well as the infrared spectroscopic characterization, now in progress, will be presented.

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