The system of equations describing 4 generations with the symmetry group $SU(3)_{C}\times SU(2)_{L}\times U(1)$

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Abstract: The system of 16-component equations including two equations of the Bethe-Salpeter kind (without an interaction) and two additional conditions are considered. It is shown that the group of the initial symmetry is $SU(3)_{C}\times SU(2)_{L}\times U(1)$. The symmetry group is established as the consequence of the field equations; $SU(2)$ should be chiral, the color space has the signature $(++-)$. The structure of permissible multiplets of the group coincides with the one postulated in the $SU(3)_{C}\times SU(2)_{L}$-model of strong and electroweak interactions excluding the possible existence of the additional $SU(2)_{R}$-singlet in a generation. It is shown here that at least three puzzling features of the standard model: the existence of a few generations, the specific symmetry group, and the necessity to use its interwoven representations may originate from the composite nature of the fundamental fermions. \footnote{This paper (in Russian) was deposited in VINITY 19.12.1988 as VINITI No 8842-B88; it was an important stage in the development of my model of the composite fundamental fermions (see hep-th/0207210). Now I have translated it in English (small corrections are made) to do more available.}

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