**PhD Physics course at Bari University ( XXXIVCycle)**

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| **Title** | **Standard Model and Physics beyond the Standard Model** |
| **Proponent** | **Fulvia De Fazio** |
| **# CFU****(1 CFU = 8 hours)** | **2 CFU (16 h)** |
| **Schedule** | **To be agreed with the students** |
| **Brief Summary of the course** | **The course aims at providing a modern description of the Standard Model (SM) of electroweak interctions, together with several new Physics models, in connection with the most recent experimental results claiming for physics beyond the SM.** |
| **Programme** | **Standard Model****- Simmetries and Lagrangiandensity****- Spontaneous breaking of the electroweaksymmetry****- The Higgsboson and itsproperties****- Quark mixing and CP violation****- CKM matrix, determination of itselements and tests of the SM****Physicsbeyond the SM****- Reasons to look for physicsbeyond the SM****- New Physicsmodelsbased on exlargedgaugegroups****- Modelsintroducing extra-dimensions****- Basics of supersymmetry** |
| **Recommended texts** | **The Standard Model and Beyond, by Paul Langacker****Second Edition (Series in High Energy Physics, Cosmology and Gravitation)** |
| **Assessment methods** | **Seminar on a topicdiscussedwithin the course** |