ISMET YURDUSEN, Hacettepe University and CRM (UdeM)
Holomorphic solutions of the supersymmetric Grassmannian sigma model

We study the gauge invariance of the supersymmetric (susy) Grassmannian sigma model $G(M, N)$. It is richer than its purely bosonic submodel and we show how to use it in order to reduce some constant curvature holomorphic solutions of the model into simpler expressions. In particular, the constant curvature holomorphic solutions of the susy $G(2, 4)$ σ-model are analyzed in detail. These solutions have constant curvature $\kappa_0 = \frac{2}{r}$, $r = 1, 2, 3, 4$, inherited from their bosonic part. For the solutions corresponding to $r = 3$ and $r = 4$, we obtain a criterion for getting the general susy solution. The cases of $r = 1$ and $r = 2$ do not satisfy this criterion and we give some of the solutions involving a polynomial behavior.