In this article instanton solutions in supersymmetric field theories on curved spaces are studied. It is known that those instantons can be described as brane solutions in flux compactifications of string and M-theory. Recently, a detailed relation between supersymmetric conditions for branes on curved spaces and those for field theories coupled to supergravity backgrounds is reported [1]. By use of this result, the authors investigate how instantons arise in both linear and non-linear supersymmetric field theories on curved spaces, from a perspective of brane configurations in string and M-theory. The article mainly focuses on D3-branes and instantons in four-dimensional field theories. In this framework, the authors indicate, the non-linearly realized supersymmetries and corresponding non-linear instantons appear in a similar fashion to the linear counterparts. Technical details on supersymmetric conditions which are key ingredients to obtain these results are presented in the bulk of the article.

References

[1] H. Triendl, JHEP **1511**, 025 (2015) doi:10.1007/JHEP11(2015)025 [arXiv:1509.02926 [hep-th]].