Title (bold, 16 Point, line spacing of 1.5, left alignment) Assisted analysis of the behavior of light unconventional structures, as biomaterials with applications in prosthetic biomechanics

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Abstract.
The paper presents a synthesis of an assisted analysis on the behavior of light, unconventional materials for prosthesis biomechanics, both in terms of biocompatibility and mechanical behavior. In a first stage, a detailed comparative study was carried out on the advantages and disadvantages of several types of light, unconventional materials in order to use them for hip prosthesis. A second stage consisted in the development, testing and use of a software application for the behavioral analytical study of different types of materials subjected to different static and dynamic loads (traction, compression, bending) equivalent to those involved in different situations of wearing a hip prosthesis. Based on the two analytical and simulation studies, it has been shown that light, unconventional materials such as TEKA PEEK carbon fiber can be a safe and effective solution when used in combination with epoxy adhesive resins. To complete the research, a coating with TEKA PEEK carbon fiber texture was arranged, which was fixed by gluing with epoxy resin over a prototyped ABS plastic core (high resolution) thus constituting a hip stent with a high level of biocompatibility, but at the same time having low mass.