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***Smooth modules and their contribution to generalizing a Sheinberg's result.***

ABSTRACT. In 1972, Sheinberg proved that, if  $A$  is a Banach algebra (not necessarily unital) and  $I$  a closed left ideal of its unitization  $A_+$ , such that the cyclic module  $A_+/I$  is strictly flat Banach left  $A$ -module, then  $I$  has a right bounded approximate identity.

To generalize the above result in the context of Fréchet (locally convex) algebras, we introduced the notion of a smooth module. This notion led us to establish a criterion of strict flatness for smooth Fréchet modules. The aforementioned criterion combined with another one, that we proved, on existence of a right bounded approximate identity in quasinormable Fréchet  $m$ -convex algebras constitute the basis for generalizing Sheinberg's result.