1125-16-1850 **Juan Cuadra*** (jcdiaz@ual.es), University of Almeria, Dpt. Mathematics, 04120 Almeria, Almeria, Spain. *On Hopf orders and Kaplansky's sixth conjecture.*

A theorem of Frobenius states that the degree of any complex irreducible representation of a finite group G divides the order of G. The proof uses that the group algebra $\mathbb{C}G$ is defined over $\mathbb{Z}$.

Kaplansky's sixth conjecture predicts that this theorem holds for complex semisimple Hopf algebras. There are several partial results in the affirmative. Compared to the case of groups, the main difficulty to prove this conjecture (if true) is that it is not guaranteed that a complex semisimple Hopf algebra H is defined over $\mathbb{Z}$ or, more generally, over a number ring. If it would be so, Larson proved that H satisfies Kaplansky's sixth conjecture. The question whether every complex semisimple Hopf algebra can be defined over a number ring has always been behind this conjecture.

In this talk we will answer this question in the negative. The family of examples that we will handle, constructed by Galindo and Natale, are Drinfeld twists of certain group algebras. The key fact is that the twist contains a scalar fraction, which makes impossible to define such Hopf algebras over a number ring.

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