



INTERNATIONAL ELECTRONIC JOURNAL OF ALGEBRA  
VOLUME \*\* (20\*\*) \*\*\_\*\*  
DOI: 10.24330/iej.\*\*\*\*\*

## TENSOR-CLOSED OBJECTS IN THE BGG CATEGORY OF A QUANTIZED SEMISIMPLE LIE ALGEBRA

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Received: 26 March 2020; Revised: 9 July 2020; Accepted: 15 July 2020

Communicated by Burcu Üngör

**ABSTRACT.** We consider the BGG category  $\mathcal{O}$  of a quantized universal enveloping algebra  $U_q(\mathfrak{g})$ . We call a module  $M \in \mathcal{O}$  tensor-closed if  $M \otimes N \in \mathcal{O}$  for any  $N \in \mathcal{O}$ . In this paper we prove that  $M \in \mathcal{O}$  is tensor-closed if and only if  $M$  is finite dimensional. The method used in this paper applies to the unquantized case as well.

**Mathematics Subject Classification (2020):** 17B37, 17B10, 16T20

**Keywords:** BGG category, quantized universal enveloping algebra, tensor product, formal character

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