ON SOME NONZERO RINGEL-HALL NUMBERS
IN TAME CASES

CSABA SZÁNTÓ

Abstract. Let k be a finite field and consider the finite dimensional path algebra kQ where Q is a quiver of tame type i.e. of type $\tilde{A}_n, \tilde{D}_n, \tilde{E}_6, \tilde{E}_7, \tilde{E}_8$. Let $\mathcal{H}(kQ)$ be the corresponding Ringel-Hall algebra. We are going to study the Ringel-Hall numbers of the form $F_{XP}^{P'}$ with P, P' preprojective indecomposables of defect -1 and $F_{IX}^{I'}$ with I, I' preinjective indecomposables of defect 1. More precisely we will give necessary conditions for the module X such that these Ringel-Hall numbers are nonzero.

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Key words. Tame hereditary algebra, Ringel-Hall algebra, Ringel-Hall numbers.

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"Babeş-Bolyai" University
Faculty of Mathematics and Computer Science
Str. Mihail Kogălniceanu Nr. 1
400084 Cluj-Napoca, Romania
E-mail: `szanto.cs@gmail.com`