

## SUM CONNECTIVITY MATRIX AND ENERGY OF A 3-UNIFORM $T_2$ HYPERGRAPH

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**Abstract:** Let  $H$  be a 3-uniform  $T_2$  hypergraph with order  $n \geq 5$ . The sum connectivity matrix of  $H$ , denoted by  $SC(H)$  is defined as the square matrix of order  $n$ , whose  $(i, j)^{th}$  entry is  $\frac{1}{\sqrt{d_i+d_j}}$  if  $x_i$  and  $x_j$  are adjacent and zero for other cases. The sum connectivity energy  $SCE(H)$  of  $H$  is the sum of the absolute values of the eigenvalues of  $SC(H)$ . It is shown that, for a 3-uniform  $T_2$  hypergraph  $[SCE(H)] \leq \lfloor \frac{n}{2} \rfloor + 2$ .

**Keywords and Phrases:**  $T_2$  hypergraph; 3-uniform  $T_2$  hypergraph; sum connectivity matrix; sum connectivity energy.

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### 1. Introduction

The basic definitions and terminologies of a hypergraph are not given here and we refer it [2] and [8]. The concept of hypergraph was introduced by Berge in 1967. In 2017, Seena V and Raji Pilakkat were introduced Hausdorff hypergraph,  $T_0$  hypergraph and  $T_1$  hypergraph. Based on [5] and [6] S. Sujitha and D. Sharmila