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**A solution to the edge-balanced index set problem for complete odd bipartite graphs.** (English) [Zbl 1301.05298](#)

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Summary: *M. C. Kong* et al. [Congr. Numerantium 196, 71–94 (2009; [Zbl 1211.05149](#))] began work on the problem of finding the edge-balanced index sets (EBI) of complete bipartite graphs  $K_{m,n}$  by solving the cases where  $n = 1, 2, 3, 4$ , and 5, and also the case where  $m = n$ . *E. Krop* and *K. Sikes* [ibid. 207, 23–32 (2011; [Zbl 1247.05209](#))] expanded upon that work by finding  $\text{EBI}(K_{m,m-2a})$  for odd  $m > 5$  and  $1 \leq a \leq \frac{m-3}{4}$ . In this paper, we provide a general solution to the edge-balanced index set problem for all complete odd bipartite graphs, thereby concluding the problem for this case.

**MSC:**

[05C78](#) Graph labelling (graceful graphs, bandwidth, etc.)

[05C25](#) Graphs and abstract algebra (groups, rings, fields, etc.)

**Keywords:**

complete bipartite graph; edge-labeling; vertex-labeling; edge-friendly labeling; edge-balanced index set