

## On $z$ -cycle factorizations with two associate classes where $z$ is $2a$

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Let  $K = K(a, p; \lambda_1, \lambda_2)$  be the multigraph with: the number of vertices in each part equal to  $a$ ; the number of parts equal to  $p$ ; the number of edges joining any two vertices of the same part equal to  $\lambda_1$ ; and the number of edges joining any two vertices of different parts equal to  $\lambda_2$ . The existence of  $C_4$ -factorizations of  $K$  has been settled when  $a$  is even; when  $a \equiv 1 \pmod{4}$  with one exception; and for very few cases when  $a \equiv 3 \pmod{4}$ . The existence of  $C_z$ -factorizations of  $K$  has been settled when  $a \equiv 1 \pmod{z}$  and  $\lambda_1$  is even, and when  $a \equiv 0 \pmod{z}$ . In this paper, we give progress for  $C_z$ -factorizations of  $K$  for  $z = 2a$ .

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