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*A class of balanced weighing matrices and the corresponding association scheme*

Balanced weighing matrices with parameters

$$\left(1 + 18 \cdot \frac{9^{m+1} - 1}{8}, 9^{m+1}, 4 \cdot 9^m\right),$$

for each nonzero integer  $m$  is constructed. This seems to be the first infinite class not belonging to those with classical parameters. It is shown that any balanced weighing matrix is equivalent to a five-class association scheme.

This is joint work with Thomas Pender and Sho Suda.