

Median polish procedure (Tukey, [1977](#)) can be used to remove the impact of systematic error. Median polish works by alternately removing the row and column medians, and continues until the proportional reduction in the sum of absolute residuals is less than a fixed value ε or until a fixed number of iterations has been carried out. The residual (r_{ijp}) of the measurement for row and column j on the p -th cell is obtained by fitting a two-way median polish, and is defined as follows:

$$r_{ijp} = x_{ijp} - \hat{x}_{ijp} = x_{ijp} - (\hat{\mu} + \hat{R}_{ip} + \hat{C}_{jp}).$$

The residual is defined as the difference between the observed result (x_{ijp}) and the fitted value (\hat{x}_{ijp}), which is defined as the estimated average of the cell ($\hat{\mu}_p$) + estimated systematic measurement offset for row i on cell p (\hat{R}_{ip}) + estimated systematic measurement column offset for column j on plate p (\hat{C}_{jp}). Thus, the matrix of residuals \mathbf{R} replaces the original matrix in the further computations.