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Jiehua Zhu and **Xiezhang Li*** (xli@georgiasouthern.edu). *A full row-rank system matrix generated by the strip-based projection model in parallel-beam image reconstruction.*

Let $Cu = k$ be an underdetermined linear system generated by the strip-based projection model in parallel-beam image reconstruction, where C is row-rank deficient. In the case of one scanning direction, an index set H is specified such that a full row-rank matrix F , obtained by deleting rows of C with row index in H , contains the maximum linearly independent rows of C . Therefore, the corresponding system $Fu = h$ is equivalent to $Cu = k$ and consequently, the cost of an image reconstruction from $Fu = h$ is reduced. (Received January 14, 2011)