

Ray and Me

Jack Edmonds

Waterloo

In honour of Ray Fulkerson's 100th birthday, I will speak about some of my work which he inspired including:

1. Complexity of linear systems. Determinants and solving a linear system much better than with Gauss elimination.
2. Total dual integrality, and the relationship between convex hulls and combinatorial optimization, including some on-going research.
3. Optimum Branching Systems, 'well-solved' but needing implementation.

I will also speak about my Ray Fulkerson's Birthday Conjecture (RFB).

Alternating sign matrices (ASMs) are $n \times n$ square matrices with row set, $\{1, 2, 3, \dots, n\}$, and column set, $\{1, 2, 3, \dots, n\}$, with all entries in $\{0, 1, -1\}$, where each row and column sums to 1,

and where the nonzero entries in each row and column alternate in sign.

Behrend and Knight (2007) and Striker (2009) gave an inequality system, BKS, describing the convex hull of ASM matrices.

The **RFB Conjecture** is: The BKS linear inequality system is TDI.