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Anthony Giaquinto*, Department of Mathematics, Loyola University Chicago, Chicago, IL 60626, and **Murray Gerstenhaber** (mgersten@math.upenn.edu), Department of Mathematics, University of Pennsylvania, Philadelphia, PA 19104. *Graphs, Frobenius functionals, and the classical Yang-Baxter equation.*

A Lie algebra is Frobenius if it admits a linear functional F such that the Kirillov form $F([x,y])$ is non-degenerate. If \mathfrak{g} is the m -th maximal parabolic subalgebra $P(n,m)$ of $\mathfrak{sl}(n)$ this occurs precisely when $(n,m) = 1$. We define a "cyclic" functional F on $P(n,m)$ and prove it is non-degenerate using properties of certain graphs associated to F . These graphs also provide in some cases readily computable associated solutions of the classical Yang-Baxter equation. Such solutions produce non-commutative versions of the associated parabolic group. (Received January 26, 2010)