

Accepted Manuscript

Title: Improved quadratic cuts for convex mixed-integer nonlinear programs

Authors: Lijie Su, Lixin Tang, David E. Bernal, Ignacio E. Grossmann



PII: S0098-1354(17)30356-3
DOI: <https://doi.org/10.1016/j.compchemeng.2017.10.011>
Reference: CACE 5917

To appear in: *Computers and Chemical Engineering*

Received date: 3-11-2016
Revised date: 10-10-2017
Accepted date: 11-10-2017

Please cite this article as: Su, Lijie., Tang, Lixin., Bernal, David E., & Grossmann, Ignacio E., Improved quadratic cuts for convex mixed-integer nonlinear programs. *Computers and Chemical Engineering* <https://doi.org/10.1016/j.compchemeng.2017.10.011>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Improved quadratic cuts for convex mixed-integer nonlinear programs

Lijie Su^{a,b}, Lixin Tang^{a*}, David E. Bernal^c, Ignacio E. Grossmann^c

^a Institute of Industrial and Systems Engineering, Northeastern University, Shenyang 110819, P. R. China

^b State Key Laboratory of Synthetical Automation for Process Industries, Northeastern University, Shenyang, 110819, P. R. China

^c Department of Chemical Engineering, Carnegie Mellon University, Pittsburgh 15213, PA, USA

Highlights

- Scaled quadratic cuts proposed for Outer Approximation and Partial Surrogate for convex MINLP
- Scaled quadratic cut proved to be tighter underestimate than tangent cut for convex functions
- Scaled quadratic cuts integrated with hybrid cuts, multi-generation cuts in OA and PSC methods.
- Six solution methods, OA-QCUT, OA-MQCUT, OA-HCUT, OA-MHCUT, PSC-QCUT and PSC-MQCUT, are developed
- Numerical results demonstrate the effectiveness of solution methods with scaled quadratic cuts.

* Corresponding author. *E-mail address*: Lixintang@mail.neu.edu.cn (Lixin Tang)

Download English Version:

<https://daneshyari.com/en/article/6595005>

Download Persian Version:

<https://daneshyari.com/article/6595005>

[Daneshyari.com](https://daneshyari.com)