

## Accepted Manuscript

Title: A NUMERICAL METHOD OF CASCADE ANALYSIS AND DESIGN FOR MULTI-COMPONENT ISOTOPE SEPARATION

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PII: S0263-8762(13)00531-5  
DOI: <http://dx.doi.org/doi:10.1016/j.cherd.2013.12.016>  
Reference: CHERD 1446

To appear in:

Received date: 2-5-2013  
Revised date: 26-10-2013  
Accepted date: 16-12-2013

Please cite this article as: Zeng, S., Cheng, L., Borisevich, D.J.,  
<sup>Valentin D., Sulaberidze, G.A., A NUMERICAL METHOD OF  
CASCADE ANALYSIS AND DESIGN FOR MULTI-COMPONENT  
ISOTOPE SEPARATION, *Chemical Engineering Research and Design* (2013),  
<http://dx.doi.org/10.1016/j.cherd.2013.12.016>

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**A NUMERICAL METHOD OF CASCADE ANALYSIS AND DESIGN  
FOR MULTI-COMPONENT ISOTOPE SEPARATION**

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**ABSTRACT**

A numerical method is presented for cascade analysis and design for multi-component isotope separations. A fundamental issue of interest in cascade analysis and design is the solution of the nonlinear algebraic equation system. This system describes the mass conservation and the separation property of a cascade, which provides the hydraulic state and the component distributions in the cascade. Analytical solutions for the system are only available in a few special cases. Numerical methods are preferred for many of the complicated separation situations; however, the solution process in a numerical method is carried out through iterations and is very sensitive to initial values, which often leads to the failure of the method.

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