

## Letter to the Editor

### Comments on State Variable Feedback Control of Multiregion Reactors

Weaver and Vanasse have obviously independently discovered the control scheme discussed in their recent article.<sup>1</sup> However, Bass first discovered it<sup>2</sup> in 1960 and published it<sup>3</sup> along with an efficient algorithm for computing the resolvent matrix. A somewhat similar method (although not in state space notation) has also been discovered<sup>(4-8)</sup> for the case in which a compensation element must be added in cascade, i.e., more poles added. All these methods are useful tools for the control systems designer, so it is good to see them in print in different

journals. To obtain practical results, reasonable closed loop pole configurations should be specified and the sensitivity investigated, as Weaver and Vanasse have done.

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<sup>4</sup>R. E. MORTENSEN, "The Determination of Compensation Functions for Linear Feedback Systems to Produce Specified Closed-Loop Poles," Space Technology Labs., Los Angeles, Calif., Internal Tech. Department No. TR-59-0000-00781 (August 11, 1959).

<sup>5</sup>JOHN A. ASELTINE, in *Computer Control Systems Technology*, C. T. LEONDES, Ed., pp. 238-243, McGraw-Hill Book Company, Inc., New York (1961).

<sup>6</sup>PAUL P. SHIPLEY, *IEEE PGAC* 2, AC-8, 114 (1963).

<sup>7</sup>R. E. MORTENSEN, *IEEE PGAC* 4, AC-8, 386 (1963).

<sup>8</sup>PAUL P. SHIPLEY, *IEEE PGAC* 3, AC-9, 323 (1964).

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<sup>1</sup>LYNN E. WEAVER and ROBERT E. VANASSE, *Nucl. Sci. Eng.*, 29, 264 (1967).

<sup>2</sup>R. W. BASS, "Control Synthesis and Optimization," NASA Langley Research Center (August 1961) (Multilithed lecture notes).

<sup>3</sup>R. W. BASS and I. GURA, "High Order System Design Via State-Space Considerations," Joint Automatic Control Conference, pp. 311-318 (June 1965).