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**Computer control of cell mass concentration in continuous culture.** (English) Zbl 0686.92024

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Summary: The performances of three types of cell mass control algorithms were tested experimentally in a continuously stirred tank biological reactor (CSTBR). While the performance of the PID controller was undesirable and parameter tuning was not easy, the extended least-squares self-tuning regulator (ELS-STR) and a bilinear model adaptive controller (BMAC) indicated excellent performances. Especially, the BMAC, based on a nonlinear predictor model with only one parameter to be identified, showed less excessive fluctuation of control action and better adaptation performance over the ELS-STR.

**MSC:**

**92F05** Other natural sciences (mathematical treatment)

**92Cxx** Physiological, cellular and medical topics

**92-08** Computational methods for problems pertaining to biology

**93C55** Discrete-time control/observation systems

**Keywords:**

microbial metabolism; cell mass control algorithms; continuously stirred tank biological reactor; extended least-squares self-tuning regulator; bilinear model adaptive controller; nonlinear predictor model

**Full Text:** [DOI](#)

**References:**

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