

List of Simulation Examples (Berkeley Madonna Version 10)

First download a simulation example of interest. Then open file from within Berkeley Madonna Version 10.

Solutions to Exercises 10.1.4

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| <u>BATFERM</u> | Batch Fermentation (10.1.1) |
| <u>CHEMO</u> | Chemostat Fermentation (10.1.2) |
| <u>FEDBAT</u> | Fed Batch Fermentation (10.1.3) |
| <u>MMKINET</u> | Kinetics of Enzyme Action (10.2.1) |
| <u>LINEWEAV</u> | Lineweaver-Burk Plot (10.2.2) |
| <u>OLIGO</u> | Oligosaccharide Production in Lactose Hydrolysis (10.2.3) |
| <u>BATSTER</u> | Batch Heat Sterilization (10.2.4) |
| <u>CORONADYN</u> | Growth of the Corona Virus (10.2.4), <u>CORONADATASWISS</u> , <u>CORONASLOPESWISS</u> , <u>CDSlog</u> |
| <u>VARVOL</u> | Variable Volume Fermentation (10.3.1) |
| <u>VARVOLD</u> | Variable Volume Fermentation (10.3.1) |
| <u>PENFERM</u> | Penicillin Fermentation Using Elemental Balancing (10.3.2) |
| <u>ETHFERM</u> | Ethanol Fed Batch Diauxic Fermentation (10.3.3) |
| <u>REPFED</u> | Repeated Fed Batch Culture (10.3.4) |
| <u>REPLCUL</u> | Repeated Medium Replacement Culture (10.3.5) |
| <u>PENOXY</u> | Penicillin Production in a Fed Batch Fermenter (10.3.6) |
| <u>CHEMOSTA</u> | Steady-State Chemostat (10.4.1) |
| <u>CONINHIB</u> | Continuous Culture with Inhibitory Substrate (10.4.2) |
| <u>ACTNITR</u> | Nitrification in Activated Sludge Process (10.4.3) |
| <u>ENZTUBE</u> | Tubular Enzyme Reactor (10.4.4) |
| <u>DUAL</u> | Dual Substrate Limitation (10.4.5) |
| <u>TWOSTAGE</u> | Two-Stage Chemostat with Additional Stream (10.4.6) |
| <u>STAGED</u> | Two Stage Culture with Product Inhibition (10.4.7) |
| <u>FBR</u> | Fluidized Bed Recycle Reactor (10.4.8) |
| <u>NITBED</u> | Nitrification in a Fluidized Bed Reactor (10.4.9) |
| <u>ENZCON</u> | Continuous Enzymatic Reactor (10.4.10) |
| <u>DEACTENZ</u> | Reactor Cascade with Deactivating Enzyme (10.4.11) |
| <u>PHBTWO</u> | Production of PHB in a Two-Tank Reactor Process (10.4.12) |
| <u>DCMDEG</u> | Dichloromethane in a Biofilm Fluidized Sand Bed (10.4.13) |
| <u>OXENZ</u> | Aeration of a Tank Reactor for Enzymatic Oxidation (10.5.1) |
| <u>INHIB</u> | Gas and Liquid Oxygen Dynamics in Fermenter (10.5.2) |
| <u>NITRIF</u> | Batch Nitrification with Oxygen Transfer (10.5.3) |
| <u>OXDYN</u> | Oxygen Uptake and Aeration Dynamics (10.5.4) |
| <u>KLADYN</u> | Dynamic KLa Methods (10.5.5) |

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| <u>KLAFIT</u> | Dynamic KLa Methods (10.5.5) <u>KLADATA</u> |
| <u>ELECTFIT</u> | Dynamic KLa Methods (10.5.5) <u>ELECTDATA</u> |
| <u>BIOFILTDYN</u> | Biofiltration Column for Two Inhibitory Substrates (10.5.6) |
| <u>TITERDYN</u> | Optical Sensing in Microtiter Plates (10.5.7) <u>TITERDYNDATA</u> |
| <u>TITERBIO</u> | Optical Sensing in Microtiter Plates (10.5.7) |
| <u>BIOFILM</u> | Double Substrate Biofilm Reaction (10.6.1) |
| <u>ENZSPLIT</u> | Steady-State Split Boundary Solution (10.6.2) |
| <u>ENZDYN</u> | Dynamic Porous Diffusion and Reaction (10.6.3) |
| <u>CELLDIFFBEAD</u> | Oxygen Diffusion in Animal Cells (10.6.4) |
| <u>CELLDIFFCYL</u> | Oxygen Diffusion to a Single Cell or Cell Aggregate (10.6.5) |
| <u>NITBEDFILM</u> | Immobilized Biofilm in a Nitrification Column (10.6.6) |
| <u>TEMPCONT</u> | Feedback Control of a Water Heater (10.7.1) |
| <u>FERMTEMP</u> | Temperature Control of Fermentation (10.7.2) |
| <u>TURBCON</u> | Turbidostat Response (10.7.3) |
| <u>CONTCN</u> | Feed Rate Control of Inhibitory Substrate (10.7.4) |
| <u>ADAPTOXCONT</u> | Adaptive Control of Dissolved Oxygen (10.7.5) |
| <u>MEMINH</u> | Cell Retention Membrane Reactor (10.8.1) |
| <u>PERVAPSUB</u> | Fermentation with Pervaporation (10.8.2) |
| <u>LACMEMRECYC</u> | Two Stage Fermentor with Cell Recycle (10.8.3) |
| <u>LACREACT</u> | Hollow Fiber Enzyme Reactor for Lactose Hydrolysis (10.8.4) |
| <u>ANIMALIMMOB</u> | Animal Cells in a Fluidized Bed Reactor (10.8.5) |
| <u>COMMENSA</u> | Bacteria with Opposite Substrate Preferences (10.9.1) |
| <u>COMPASM</u> | Competitive Assimilation and Commensalism (10.9.2) |
| <u>PLASMID</u> | Stability of Recombinant Microorganisms (10.9.3) |
| <u>MIXPOP</u> | Predator-Prey Population Dynamics (10.9.4) |
| <u>TWOONE</u> | Competition Between Organisms (10.9.5) |
| <u>FILMPOP</u> | Competition for an Inhibitory Substrate in a Biofilm (10.9.6) |
| <u>ANAEMEAS</u> | Model for Anaerobic Reactor Activity Measurement (10.9.7) |
| <u>SIRDYN</u> | Dynamics of an Epidemic Using the SIR Model (10.9.8), <u>DayRandD</u> , <u>Ddeath</u> , <u>Dinf</u> , <u>Infpres</u> |
| <u>SIRDYNDIM</u> | Dynamics of an Epidemic Using the SIR Model (10.9.8) |
| <u>YEASTOSC</u> | Oscillations in Continuous Yeast Culture (10.10.1) |
| <u>PHB</u> | Structured Model for PHB Production (10.10.2) |
| <u>MAMMCELLCYCLE</u> | Mammalian Cell Cycle Control (10.10.3) |
| <u>POTATO_CONTROL</u> | Metabolic Fluxes in Secondary Metabolism in Potato (10.10.4) |
| <u>POTATO_ELICITOR</u> | Metabolic Fluxes in Secondary Metabolism in Potato (10.10.4) |
| <u>SUBTILIS</u> | Structured Model of the Production of Acetoin and Butanediol (10.10.5) |
| <u>CHOMAB</u> | Production of Monoclonal Antibodies by CHO Cells (10.10.6) |