

HOMOGENEOUS PROCESS OPTIMAL CONTROL (HOPOC)

ABSTRACT

A method of designing robust controllers for processes by the invented homogeneous process optimal control (HOPOC) scheme. I start by defining a special process called quadratic regulator homogeneous (QRH) process. It is shown for such process that optimal controller can be obtained explicitly. The approach can be further extended to cover non quadratic regulator homogeneous (non-QRH) process in the following steps: first, mapping functions are solved from mapping equation to convert non-QRH process into QRH; second, optimal controller is solved for the converted QRH process; last, mapping functions are applied to reverse the optimal controller into a robust controller for the non-QRH process. Since a process is either QRH or non-QRH, the patent has provided a general method of designing robust controllers for industrial processes.