Evolution of the Metabolic Engineering Community

Metabolic Engineering emerged as an independent research field in the late 1980s and is often seen defined by two seminal papers in published in Science by James E. Bailey and Gregory Stephanopoulos in 1991 (Bailey, 1991, Stephanopoulos and Vallino, 1991). The early definitions of Metabolic Engineering focused on engineering the metabolism of living cells through directed genetic modifications with the objective to improve their properties, e.g. produce new products or increase titer, rate and yield of existing products. However, this called for an understanding of how metabolism operated. Consequently, metabolic flux analysis and other approaches for analyzing cellular physiology played a prominent role in the early days of Metabolic Engineering. This was a natural extension of developments in Biochemical Engineering which, at the time, was increasingly geared towards quantitative analysis of fermentation processes through detailed mathematical modeling at this time.