

三角形网格多面体空间四边界区域的数据参数化

冀世军, 王扬, 吕汉明

哈尔滨工业大学 机械制造及其自动化系, 哈尔滨 150001

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摘要 分析了三角网格多面体四边界区域数据参数化的基本方法, 提出了在三角网格多面体四边界区域划分基础上进行四边界区域数据快速参数化的新技术。通过坐标变换、点面投影把空间四边区域的数据参数化难题转化为平面四边区域网格划分问题, 并提出了由折线边构成平面四边区域的双向伸缩网格生成技术, 解决了反求工程中复杂曲面分片四边区域的数据采集困难问题, 为后继的多片四边区域的NURBS曲面的拼接和拟合提供了技术保证。

关键词 [机械制造自动化](#), [空间四边界区域](#), [网格划分](#), [NURBS曲面](#), [坐标变换](#)

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Parametrization of 3 D four sided region on triangular mesh model

Ji Shi-jun, WANG Yang, Lv Han-ming

Department of Mechanical Manufacturing and Automation, Harbin Institute of Technology, Harbin 150001, China

Abstract Basic methods of parametrization of the 3 D four sided region on the triangular mesh were analyzed, and a new method of fast parametrization of the 3 D four sided region data was proposed based on the segmentation of the 3 D four sided region on the triangular mesh model. By the coordinate transform and the projection of the points into a plane, the difficult parametrization in a 3 D four sided region is changed into a grid generation problem in a planar four sided region. A bidirectional flexible grid generation algorithm to form the planar four sided region by the broken line sides was suggested to deal with the difficult data acquisition problem in the segmented 3 D four sided region of the complex curved surface in the reverse engineering. A strong technical support was provided for merging and fitting several NURBS surfaces of the multi piece 3 D four sided regions.

Key words [mechanical manufacture and automation](#) [3 D four sided region](#) [grid generation](#) [NURBS surface](#) [coordinate transform](#)

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通讯作者 王扬 wyyh@hit.edu.cn

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