

Multi-User Decomposition of Design Space Models

ID: 2012-012

Executive Statement:

An innovative method enabling simultaneous multi-user access and collaborative editing in CAx applications.

Technology Overview:

This technology introduces a novel approach for multi-user decomposition of design space models, allowing multiple users to collaboratively access and edit parts and assemblies within computer-aided applications like CAD, CAE, and CAM. Utilizing constraint equations and functional relationships, the method divides models into regions, facilitating collaborative editing and ensuring data integrity.

Key Advantages:

- Enables integrated ownership and simultaneous multi-user access to models
- Increases productivity and facilitates knowledge sharing among users
- Overcomes limitations of existing methods by supporting simultaneous multi-user sessions
- Ensures data integrity through the use of geometric constraints and collaborative feature trees
- Includes administrative and security features for managing user permissions and ensuring secure collaboration

Problems Addressed:

- Issues related to model initiation, editing, and review in collaborative environments
- Lack of support for simultaneous multi-user sessions in existing CAD/CAE/CAM systems
- Inefficient division of design spaces, leading to productivity bottlenecks
- Challenges in maintaining data integrity during collaborative design processes

Market Applications:

- Product design and development in industries utilizing CAD, CAE, and CAM systems
- Collaborative engineering projects requiring real-time multi-user access and editing
- Educational institutions for teaching advanced design and engineering concepts
- FEA workspace decomposition for efficient handling of time-consuming tasks