Powering Innovation That Drives Human Advancement

What's New in Ansys Discovery

2025 R2

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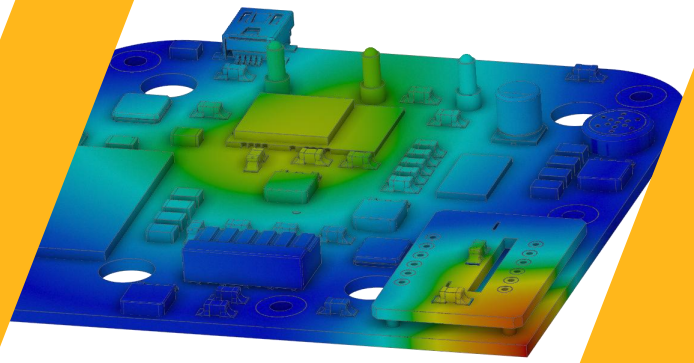
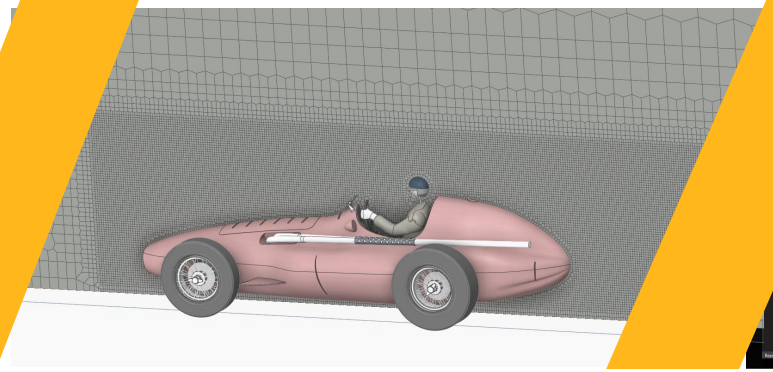
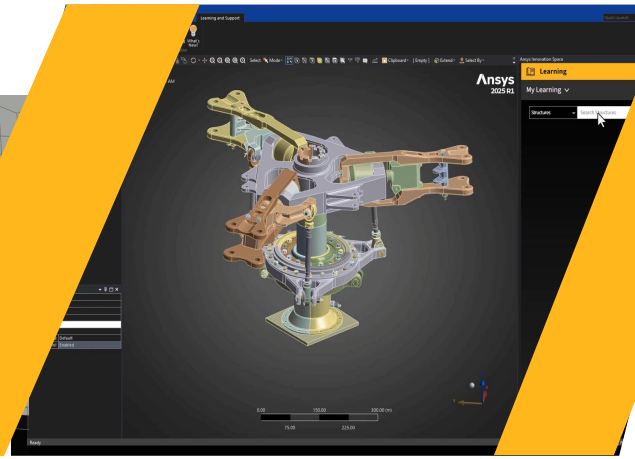
Ansys Discovery 2025 R2 Key Features







Upfront Random Vibration Analysis for Structural Integrity

- ✓ **Feature name** –Random Vibration
- ✓ **Problem Solved:** Enables early evaluation of structural response to random vibration loads without external tools
- ✓ **Industry:** Aerospace; Automotive; Electronics; Defense; Heavy Machinery
- ✓ **Ansys Product Workflow:** Discovery → Setup Random Vibration → Transfer to Mechanical (if needed).
- ✓ **Target Audience:** New and Existing Users

Smarter Mesh Control with Body of Influence

- ✓ **Feature name** –Body of Influence
- ✓ **Problem Solved:** Allows mesh control using suppressed bodies to improve fluid meshing and GPU memory usage
- ✓ **Industry:** Aerospace; Automotive; Consumer Electronics; Industrial Equipment
- ✓ **Ansys Product Workflow:** Discovery → Apply local fidelity → Run simulation
- • **Target Audience:** New and Existing Users

AI-Powered In-Product Guidance

- ✓ **Feature name** –Ansys Engineering Copilot
- ✓ **Problem Solved:** Provides in-context, AI-driven assistance for simulation and modeling questions, reducing time spent on support searches
- ✓ **Industry:** Industry Agnostic
- ✓ **Ansys Product Workflow:** Discovery → Access Copilot in UI → Get guidance or learning content
- • **Target Audience:** Existing users

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Ansys Discovery– What's New

Ansys 2025 R2

Random Vibration

- Fast evaluation of structural response to random vibration loads
- Support for Power Spectral Density (PSD) inputs and up to 20 modes with post-processing of 1σ, 2σ, or 3σ results
- Seamless setup transfer to Mechanical for deeper analysis

Fluid mesh refinement

- Apply local mesh controls using suppressed geometry for body of influence mesh control
- New sharp edge capturing enhances geometry resolution
- Improves accuracy and GPU memory usage in electronic cooling and fluid simulations

New Structural Meshing Defaults

- Improved default meshing for thin solids and complex geometries
- 50% reduction in mesh failures and highlighting of problematic areas
- Global and local fidelity settings transferable to Mechanical

In-Product Guidance Enhancements

- AI-powered Copilot embedded in Discovery for contextual simulation and modeling support
- Access learning content, AnsysGPT, forums, and tech support in-product
- Accelerates troubleshooting and reduces dependency on external searches

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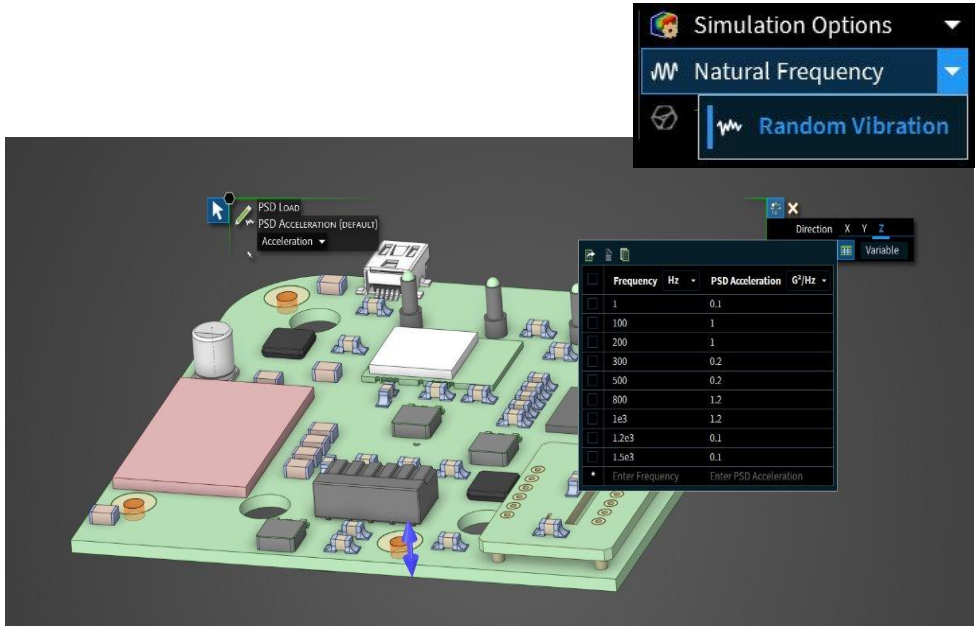
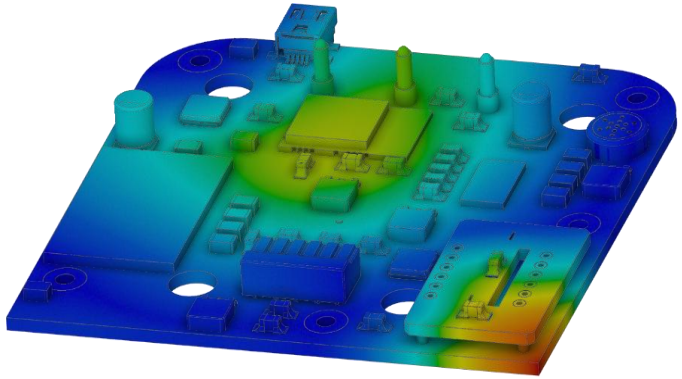
Key Feature 1 – Random Vibrations (SP1)

- **Simulates statistical structural response** to random vibration loads
- **Specify Power Spectral Density (PSD)** inputs as acceleration, velocity, or displacement on fixed supports
- **Supports up to 20 modes** with constant damping ratio for realistic analysis
- **Post-process 1σ, 2σ, or 3σ results** for displacement, stress, velocity, and acceleration
- **Seamless transfer to Mechanical**, enabling refinement in high-fidelity solvers



Benefits

- Provides upfront simulation to evaluate structural components and assemblies subjected to real-world, random vibration loads such as road vibration, wave impact, and flight loads.



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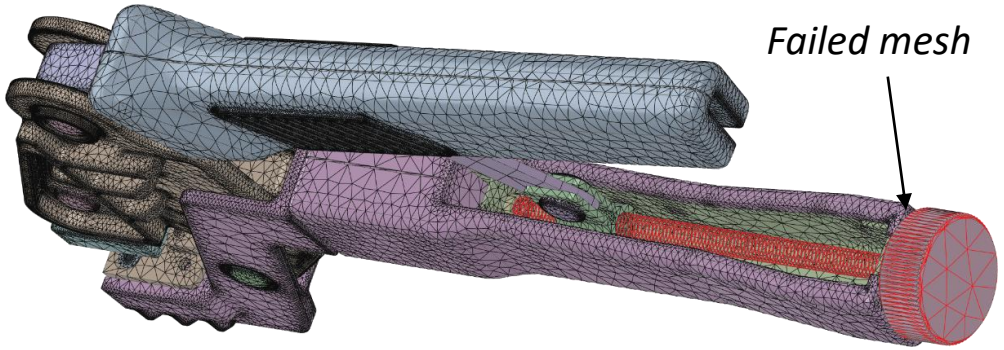
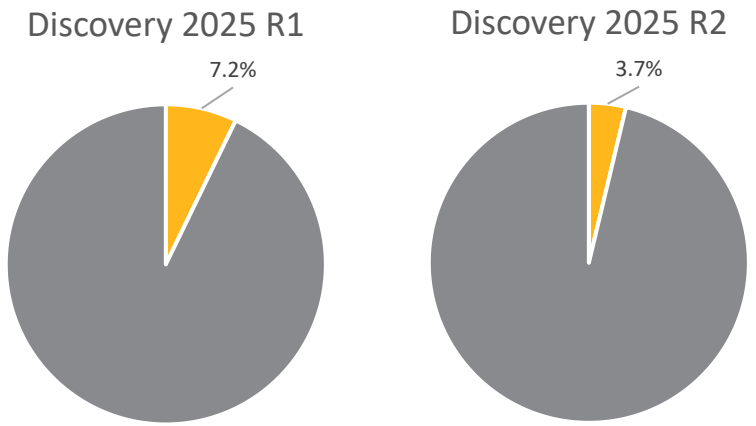
Key Feature 2 – New Structural Meshing Defaults (Refine)

- **Improved default meshing** for challenging geometries with thin solids, holes, fillets, and sweep able bodies
- **Up to 50% reduction in mesh failure**, improving reliability and success rate
- **Failed mesh regions highlighted in red**, enabling faster issue identification
- **Enhanced tetrahedral mesh quality**, especially in thin solid structures
- **Mesh settings fully transferable to Mechanical**, including global and local fidelity controls





Test data from 375 customer models
50% reduction in mesh failure 25.2 vs 25.1
Improvement in average element quality

Benefits

- Provides a robust, high quality structural mesh for a wide variety of model topology, which provides both an accurate solution and reasonable model size without any user intervention.

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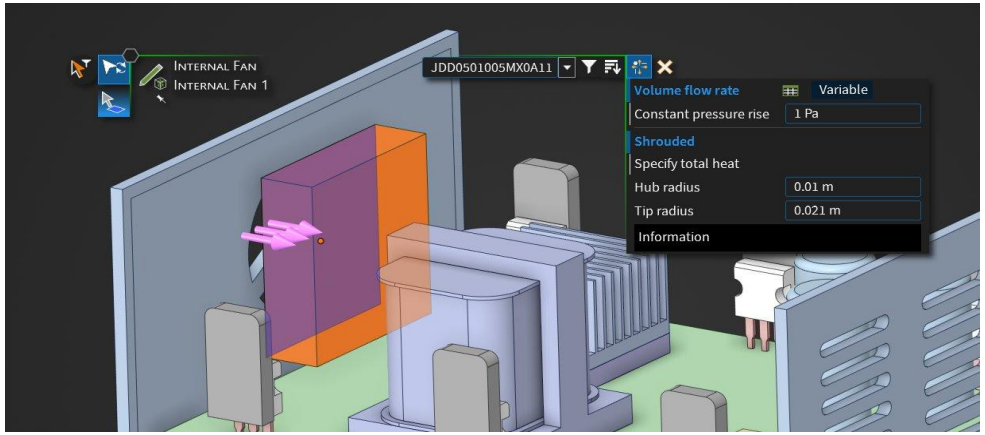
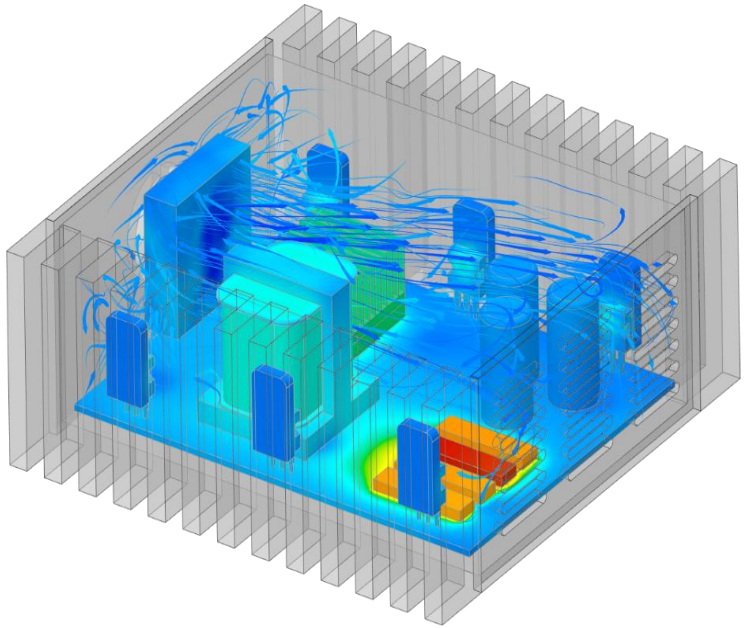
Key Feature 3 - Internal Fans

- **Add fans to cylindrical or rectangular fluid regions** for internal airflow simulation
- **Use performance curves or constant pressure rise** to model real-world fan behavior
- **Built-in fan library** with common electronics cooling fans for faster setup
- **Supports shrouded and unshrouded configurations**, expanding thermal design options
- **Monitors for pressure rise and flow rate**, enabling precise fan performance tracking





Benefits

- Improves the accuracy of electronics cooling simulation by enabling the inclusion of real-world fan behavior for thermal management applications where fans are internal to the flow domain.

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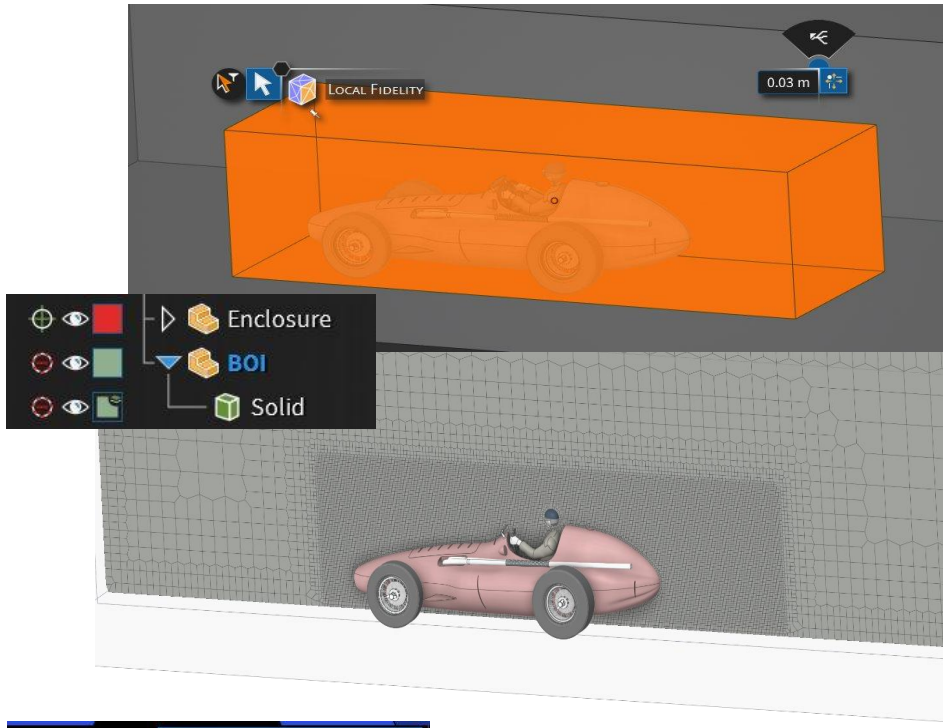
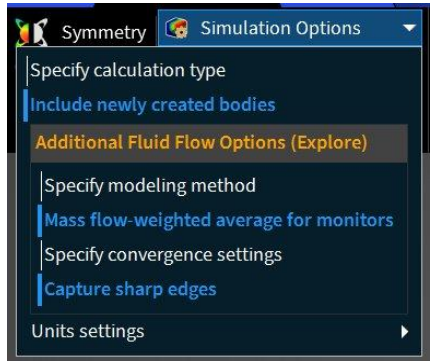
Key Feature 4 - Body of Influence Local Fidelity for Fluids (Explore)

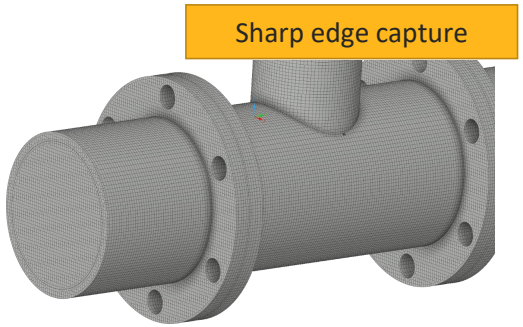
- **Body of Influence (BOI) local fidelity** now supported on suppressed geometry, enabling flexible local mesh control
- **Flexible BOI placement**: fully or partially overlapping fluid/solid regions of any shape
- **Sharp Edge Capture** improves mesh resolution around inlets, outlets, and sharp fluid features



Benefits

- Provides additional user flexibility for controlling the mesh density, which both improves the accuracy of the simulation and allows for a more efficient use of GPU memory for complex fluid and thermal applications.





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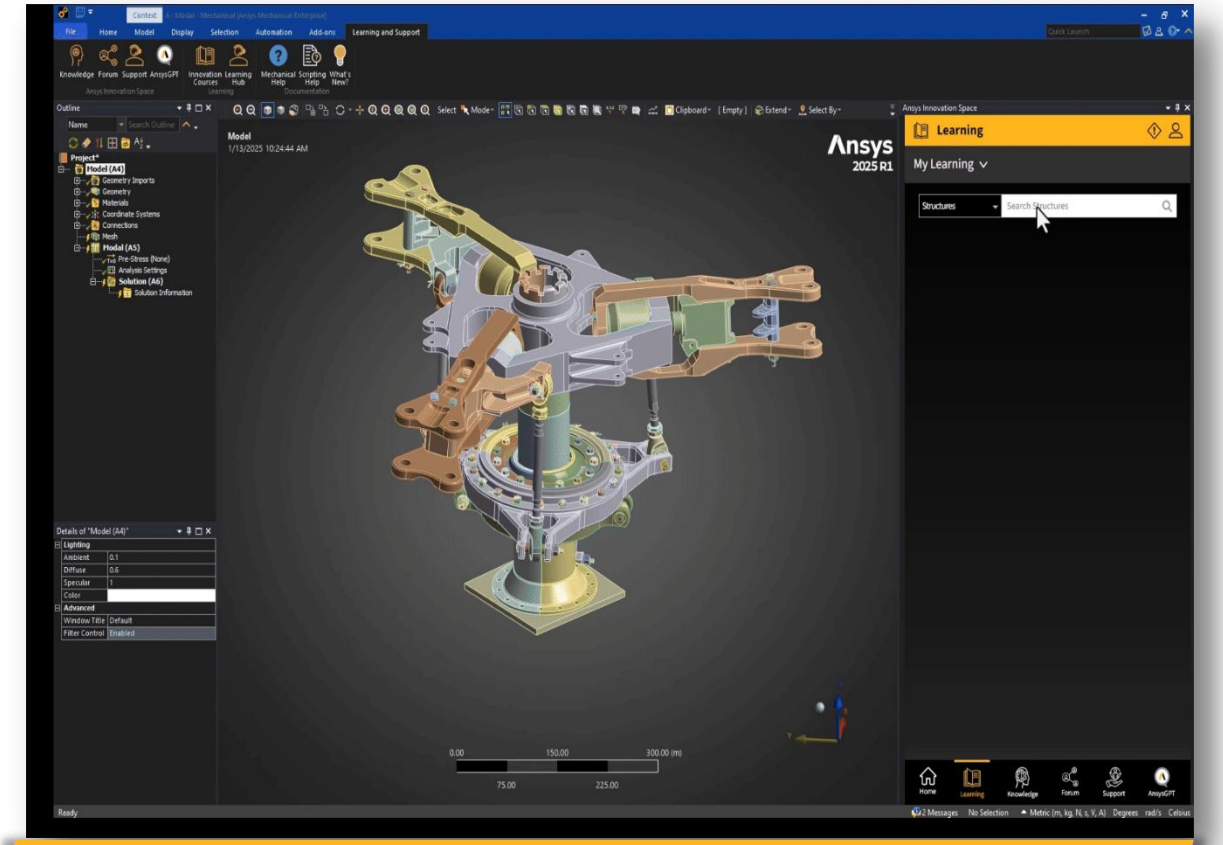
Key Feature 5 - AI-Driven Innovation, Built into Discovery



Available directly within Ansys Discovery

Ansys Engineering Copilot is a secure, robust, and reliable virtual assistant that leverages 50 years of technical support expertise to be a central Copilot for your engineering work.

Convenience: AI assistant directly integrated into your native Ansys simulation products.

Expertise: Leverage 50 years of Ansys technical knowledge and expertise.

Learning: Access guided and peer-to-peer learning and support.

Support: Customers can create and track support cases

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Support & Help Direct Access

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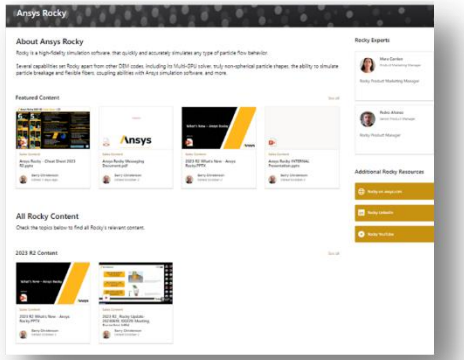
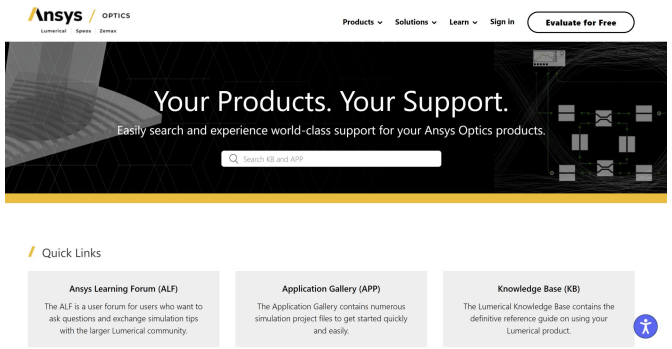


Ansys Discovery Sales Content

Sales Enablement



Ansys Discovery Webpage

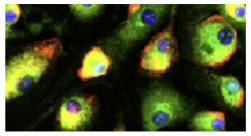
Ansys Discovery Homepage

Ansys Training Courses

Dedicated training courses

Optics Case Study Resource Center December 14, 2023

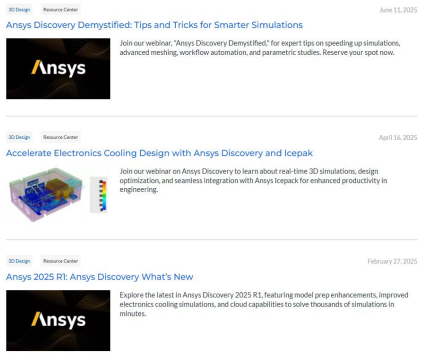
How Imperial College London Speeds Up Microscopy Design



... using the ZOS-API in Ansys **Zemax** OpticStudio, optical design teams and researchers can ... Ansys **Zemax** application programming interface (ZOS-API). ... Technology Used Ansys **Zemax** OpticStudio

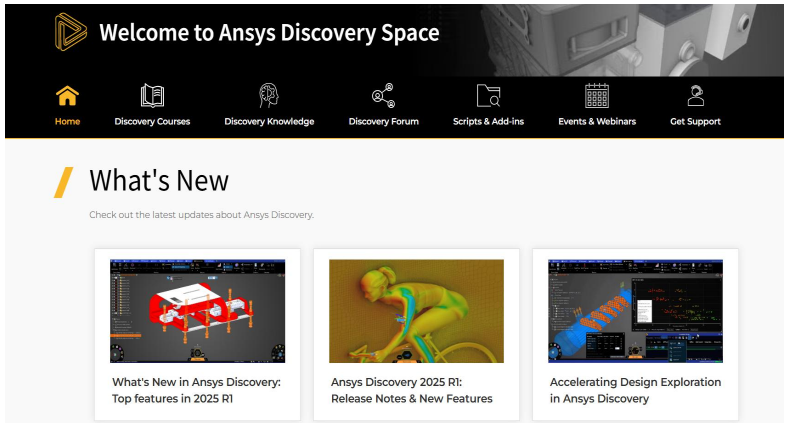
Ansys Customer Stories

Customer story examples



Ansys Discovery Webinars

Dedicated webinars/examples how to use Ansys Zemax



Ansys Discovery Innovation space

Community forum and knowledgebase area

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