DASSAULT SYSTEMES ACQUIRES OPERA SIMULATION SOFTWARE

Enhancing the SIMULIA Electromagnetic Simulation Portfolio

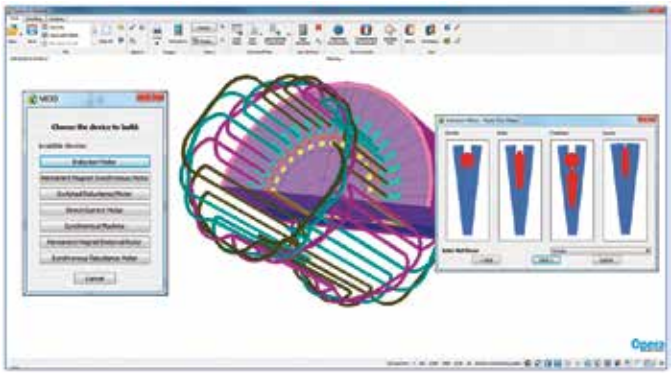
With the acquisition of CST—Computer Simulation Technology—Dassault Systèmes forged ahead into the electromagnetic (EM) simulation space, underlining its commitment to provide customers with multiphysics / multiscale simulation technology to solve a broad range of industry challenges.

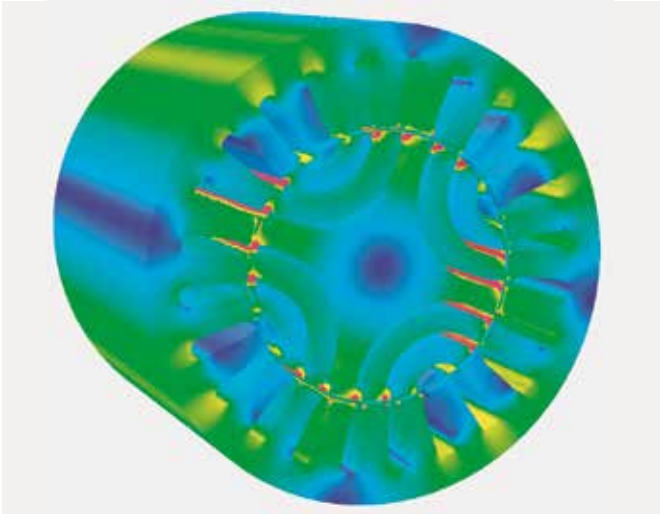
There are many industries that require electromagnetic simulation tools, dedicated to very specialized needs, comprising specific know-how and knowledge to support product innovations. Within the expanding SIMULIA EM portfolio, CST STUDIO SUITE and related EM products provide accurate results in high frequency applications within the automotive, aerospace,communication, defense, electronics, energy and healthcare industries.

New to the SIMULIA EM portfolio, is Opera Simulation Software, which complements our existing electromagnetic simulation suite with its strength in low frequency simulation, which is extremely useful for design of magnets, electric motors and other electrical machines.

The foundations of Opera were laid in the late 1970s when the Rutherford Appleton (Particle Accelerator) Laboratory needed simulation capabilities to design the latest generation of high-field magnets, for steering and focusing charged particle beams. The software was commercialized in the early 1980s as demand grew among the accelerator community for the accuracy that the design process demanded—and Opera could deliver. In common with particle accelerators, Magnetic Resonance Imaging (MRI) scanners require high magnetic fields, and parts per million homogeneity. Therefore, it was a natural progression to this field for Opera. The high field required for an MRI (10,000 times as strong as the earth's magnetic field) is typically produced by superconducting magnets. To address this problem, Opera provides specialist tools to assist the design engineer in analyzing a superconducting quench (the sudden loss of superconductivity) and designing the necessary protection circuits. Transient events such as these require accurate modeling of eddy currents and, due to Opera's ability to solve eddy current problems, it was a natural progression into the field of electrical machine design.

Accurate design of rotating electrical machines (motors and generators) initiated the development of a unique capability in Opera: re-meshing of the air-gap between the rotor and stator during solution. This innovative capability led to Opera's adoption by world-leading industrial automation and power generation companies. Today, this electrical machine design capability is being applied in the field of transportation & mobility. Development, production and market-share is increasing for electric vehicles and many countries have





announced deadlines for the phasing out of sales of internal combustion engine-powered vehicles. Different manufacturers will demand different capabilities from their drives; from peak torque, say, to peak efficiency, to power density, while limiting parameters such as operating temperature or noise produced. Or, more likely, a combination of these. This means that the electromagnetic performance has to be combined with mechanical and electronic design, creating truly a multiscale and multiphysics problem.

For More Information on Opera's capabilities and its typical applications:
www.3ds.com/products-services/simulia/products/opera-simulation-software/