

## Studsvik Scandpower

May 2026 Newsletter

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### Opening Remarks

As we head into the summer months, I want to take a moment to reflect on the incredible momentum we are seeing across our industry. Nuclear energy is very popular around the globe today, and the warmer season brings heavy operations and strategic resource and budget planning for the oncoming years. At Studsvik Scandpower, we are energized by the opportunities ahead and remain committed to supporting your operations during this busy time of year.

We are currently witnessing a remarkable sustained resurgence in nuclear energy. This growth is driving our innovation attitudes and expanding the boundaries of what our team expects to provide to current and future nuclear operations. We are proud to partner with so many of you as you actively design, license, and deploy these next-generation facilities and keep the reliable large LWRs on the grid as long as possible.

To directly support this rapid market expansion, we are launching an Advanced Reactor "Scale Up Initiative." This new program is specifically designed to provide the targeted tools (Check out our Fast Reactor benchmark from PHYSOR 2026), simulation capabilities, and dedicated expertise required to accelerate advanced reactor deployments. It's worth saying that the same skillsets can be applied to current operating LWRs and the analysis required to continue updates

and life extensions, so we anticipate being available for more work from our long-time customers who have a lot of work and feel the resource crunch from this nuclear resurgence. We look forward to sharing more details with you in the coming weeks and partnering together to grow the future of nuclear energy for the benefit of our communities and humanity.

*Sincerely,  
Art Wharton  
President, Studsvik Scandpower  
President, Studsvik Americas*

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## New Hires

Join us in welcoming our new employees to the Studsvik Team!



**Dale Vines**

**Dale Vines** joined Studsvik in January as the Senior Vice President of Growth and Development. In this role, Dale will be responsible for leading business development activities across Studsvik Americas organization. Dale is an experienced executive with a broad history working in engineering,



**Baily Painter**



**Daniel Roth**

**Daniel Roth** joined Studsvik Scandpower in March as a Senior Nuclear Engineer in the GARDEL group. Prior to joining Studsvik, he spent five

industrial projects, and corporate leadership. Skilled in Project Management, Engineering Management, Energy, Process Engineering, Business Development, Power Plants, and Operations/Maintenance. Strong, well-rounded professional with a Master of Business Administration (MBA) in Finance and Management from Tulane University - A.B. Freeman School of Business - and an Electrical Engineering degree from Mississippi State University.

**Bailey Painter** joined Studsvik in February as a Senior Nuclear Engineer. He earned his Ph.D. from Georgia Tech, where his research focused on acceleration methods for coupled multiphysics calculations. In 2021, he was named a fellow in the University Nuclear Leadership Program (UNLP). Bailey currently works as a developer for SIMULATE-5K, with a particular focus on advancing multiphysics capabilities within the code.

years at Palo Verde Nuclear Generating Station, where he worked as a Reactor Engineer and later in the Core Design group. He holds a bachelor's degree in Nuclear Engineering and Music Performance from the University of Wisconsin-Madison and is a licensed Professional Engineer. Based near Phoenix, Daniel enjoys playing volleyball, cooking, and exploring Arizona's outdoors.



**Mark Milewski**

**Mark Milewski** joined Studsvik in May as the Director of Business Development. Mark is a sales professional within the nuclear industry with an operational background within commercial nuclear power at both BWR and PWR facilities. His education as a chemical engineer allows him to quickly understand the root of most problems and his experience within the industry affords his ability to determine the best matched solution to effectively and efficiently solve those problems. Mark was a member in developing the BWR Water Chemistry Guidelines and was instrumental in the development of several novel shielding designs of which several have been patented. He thrives within groups of all sizes to leverage their teamwork and perspective to meet all objectives. His solutions have been deployed at nearly every

## Manuel Maestas

North American facility (Commercial/DOD/DOE) as well as internationally over his last 25 years in the industry.

**Manny Meastas** joined Studsvik in April as a Technical Engineer. Manny joined us from Idaho National Laboratory, where he supported projects focused on cyber-physical systems, utility communications, power system technologies, and BESS/reactor simulations. He has a Bachelor of Applied Science in Cyber Physical Systems Engineering Technology from Idaho State University. His background includes technical research, system testing, and field operations across energy and industrial environments.

Outside of work, Manny enjoys spending time outdoors, raising livestock, and boating with family and friends.

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## Code Updates

Studsvik Scandpower continues to release updates for its CMS5 software suite.

Highlights of new features and capabilities, as well as minor software corrections available in these new versions, can be found in the Changes and Release Notes documents in the "Software Updates" section of the Studsvik Support Site (login required) - <https://support.studsvikscandpower.com/>

CMS5 software has been qualified under the Studsvik, Inc. NQA1 1994, 10 CFR 50 Appendix B, 10 CFR 21 Quality Assurance Program and HELIOS2 under ISO-9001.

If you would like to receive an update to your software under your current software maintenance agreement, please contact your Studsvik commercial representative.

## Software Compilation Environment Update

Studsvik is modernizing the compiler and operating system environment used for building its nuclear codes. The current CMS5 suite has been compiled using the Intel ifort 19 compiler on CentOS 7 (RHEL 7 compatible). As Intel has phased out ifort in favor of the newer ifx compiler, Studsvik is transitioning to ifx (IFX) version 2024.2.1. Future executables will be built on Rocky Linux 8, which is fully compatible with Red Hat Enterprise Linux 8.

The latest release of CASMO5 version 3.11.00 in December 2025 will be was the first Studsvik code to adopt this new environment.

This upgrade ensures continued compatibility with the latest industry-standard tools, improved performance, and long-term support for our software products.



## CASMO5 v3.11.00

December 2025

2D lattice physics transport code for PWR and BWR

(VVER capability available in a separate version)

- ✓ MCI Peacock input file generation
- ✓ Improved submesh support for complex MXN heavy reflectors
- ✓ Improved control rod depletion branches for PWRs (S5C BCR)
- ✓ Switch from ifort to ifx

## HELIOS2 v2.04.02

December 2024

2D general geometry lattice physics transport code

- ✓ Improved isotopic weighting factors for fission neutron emission
- ✓ Optional reduced burnup chains
- ✓ Multithreaded computation
- ✓ Linear source Method of Characterization (MoC) solution
- ✓ Optional 8-family delayed neutron data





## SIMULATE5 v2.09.00

October 2025

3D steady state nodal simulator code for PWRs and BWRs

- ✓ Explicit LPRM/WRNM depletion model for BWRs
- ✓ Automatic axial shift of bottom of the active core
- ✓ Speed-up of SDM and HWR calculations
- ✓ Updates of EPR-TMODE model

## SIMULATE5-K v2.09.00

October 2025

Advanced, multi-group nodal code for transient analysis of LWRs using SIMULATE5 methodology.

- ✓ CMS5 waterside corrosion model: The purpose of the new model is to enhance predictions within the framework of the NRC Regulatory Guide 1.236.
- ✓ Updates to the evaluation of the cladding surface temperature for non-default heat transfer correlations
- ✓ Extension of the intra-pellet power profile tables up to 100 GWd/tU
- ✓ Improvement in the evaluation of the BWR interstitial bypass flow
- ✓ Improvements in the convergence of the power / thermal-hydraulic oscillations



## CMSLink5 v1.25.00

April 2026

Linking code between CASMO5 and SIMULATE5/3,  
SIMULATE5-K/3-K

- ✓ Corrected SER CL5-03: The Gadolinium isotopic number density vs Shutdown Cooling data in the library with the PWR fuel assembly segments generated with the QTR option.
- ✓ Tracking of BWR LPRM detector isotopes U-234, U-235, and U-236 for the new explicit LPRM depletion model in SIMULATE5.

## SNF v1.08.04

September 2025

3D spent nuclear fuel isotopics and decay heat tracking

- ✓ Extended sets of nuclear data uncertainties: MOX/UOX (Bu, Dns, Enr)
- ✓ Multi-pin model extensions. MTP library vs node-only library verification.
- ✓ Support for zero burnup in assembly and fuel pins analyses
- ✓ Extended database interface
- ✓ Target date, date of analyses from EOL in multi-assembly cases
- ✓ Cycle/exposure limits with autoQTR assemblies
- ✓ Several fixes related to multi-library/multi-unit cases and autoQTR assemblies
- ✓ Changes in axial sub-node material property during irradiation



# CMSBuilder

## CMSBuilder v2.02.00

March 2025

A graphical fuel management and loading pattern design suite that provides core design engineers with a sophisticated interface to simplify assembly design, fuel shuffling and loading pattern evaluation.

- ✓ Label-based shuffling support
- ✓ Octant core symmetry autoloading
- ✓ In-place rotations for PWR assemblies
- ✓ Additional assembly color coding assignment flexibility
- ✓ Allow user to adjust quick start values
- ✓ Export core ranking to ASCII file
- ✓ Auto-save latest loading pattern on close

Current code versions for other Studsvik software include: CASMO5\_VVER v3.11.00, SIMULATE5\_v2.09.00, S5POST v1.00.00, CMSView5 v2.00.01, NORDIC v3.03.00

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## Did You Know?

**Did You Know...** that the CASMO5 multi-assembly capability can be used to generate improved PWR radial reflector data?

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# Industry News

Learn more about recent news from the Studsvik Scandpower team!

Studsvik Scandpower welcomes Lightbridge to the CMS5 user community!

Read more about the news here: [Press Release](#)



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Learn more about the recent Publications from the Studsvik team:

- **Validation of SIMULATE5–K and CASMO5 with the SPERT–III E–Core**

Authors: William Dawn, Gerardo Grandi, Tamer Bahadir (Studsvik Scandpower)

Link: <https://www.frontiersin.org/journals/nuclear-engineering/articles/10.3389/fnuen.2026.1771859/full>

- **Application of CASMO5 to Similarity Analysis Using Integral Indices**

Authors: Rodolfo M. Ferrer, Joshua M. Hykes (Studsvik Scandpower)

Link: <https://www.tandfonline.com/doi/full/10.1080/00295639.2026.2646820>

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**CMS5 Generic PWR Topical Report Supplement 1 Approved by USNRC**

Studsvik Scandpower’s CMS5 reactor core simulation software recently received approval from the US Nuclear Regulatory Commission (NRC) for application towards increased fuel enrichment and extended exposure, along with confirmed application to small modular pressurized light water reactors. Approval of this supplement equips users of the CMS5 PWR Generic Topical Report to analyze cores containing fuel with <sup>235</sup>U enrichments up to 8 percent by weight and operated to 80 GWD/MTU maximum fuel rod-average exposure. Licensing submittals to NRC based on these analyses could forgo further evaluation of the reactor core simulation methodology, thereby permitting substantial savings in time and cost of regulatory review.

Expanding CMS5 application to increased fuel enrichment and exposure is achieved through benchmarking comparisons using state of the art analytical methods and a broad set of measurements, including critical experiments and actual core operations data. Independent validation occurs for the CASMO5 core lattice physics code and for the SIMULATE5 three-dimensional nodal diffusion core simulator, and, uniquely, interdependence is confirmed by CASMO5 to two-dimensional SIMULATE5 comparisons. This rigorous approach provides the confidence necessary to utilize CMS5 as an independent methodology without regard to selection of a nuclear fuel vendor.

Please visit the NRC ADAMS website for the approved publication at accession number ML26131A418.



Pictured: Ulrik Svensson, Petra Malá, Tamer Bahadir, Emiliya Georgieva, William Dawn, Joshua Hykes, Charles Wemple, Rodolfo Ferrer, Melanie Joseph

## PHYSOR 2026

The Studsvik Scandpower team was in full attendance at the recent PHYSOR 2026 conference in Turin, Italy. The International Conference on the Physics of Reactors (PHYSOR 2026) focused on "The reactor physics challenge for the nuclear answer to decarbonization", with over 11 technical presentations. Key highlights included benchmarking results using the industry-standards CASMO5 and SIMULATE5, as well as the latest Monte-Carlo code, Peacock.

Studsvik Scandpower Technical Papers Presented at PHYSOR 2026:

- **CASMO5 Analysis of HTC Critical Experiments**

Presenting author: Joshua Hykes

Author: Joshua Hykes

Co-authors: Rodolfo Ferrer

- **Nuclear Data Uncertainty Quantification for Small High-Leakage Light Water Reactors using CASMO5/SIMULATE5**

Presenting author: Rodolfo Ferrer

Author: Rodolfo Ferrer

Co-authors: Joshua Hykes

- **Impact of Neutron Library and Thermal Conductivity on PWR Axial Stability**

Presenting author: Ulrik Svensson

Author: Ulrik Svensson

Co-authors: Ville Hynonen, Jussi Kumpula

- **Shutdown margin calculations with SIMULATE5**

Presenting author: Petra Mala

Author: Petra Mala

Co-authors: Tamer Bahadir

- **CMS5 Analysis of the LDR Lite Benchmark: Initial Core at Hot Full Power with Equilibrium Xenon**

Presenting author: Emiliya L. Georgieva

Author: Emiliya L. Georgieva

Co-authors: Tamer Bahadir

- **Peach Bottom 2 Turbine Trip 2 Calculation with Nodal Transient Code SIMULATE5-K**

Presenting author: Petra Mala

Author: Petra Mala

Co-authors: James Carnal, Gerardo Grandi

- **LWR Benchmark Testing of the Helios2 ENDF/B-VIII.1 Nuclear Data Library**

Presenting author: Charles Wemple

Author: Charles Wemple

Co-authors: Teodosi Simeonov

- **Benchmark Testing of the Peacock Monte Carlo Code System**

Presenting author: Charles Wemple

Author: Charles Wemple

Co-authors: William Madsen, William Dawn

- **Multi-Group Cross Section Generation with Peacock for Fast Reactor Applications**

Presenting author: William Dawn

Author: Tung Nguyen

Co-authors: William Dawn, Charles Wemple, Tamer Bahadir, Rodolfo Ferrer, Joshua Hykes, Joel Rhodes III

- **Temperature Interpolation of Cross Sections in the Peacock Monte Carlo Code**

Presenting author: William Dawn

Author: William Dawn

Co-authors: Charles Wemple

- **Investigation of Chlorine Cross Sections in Molten Chloride Fast Reactors Using Peacock**

Presenting author: William Dawn

Author: William Dawn

Co-authors: William Madsen, Charles Wemple

Art Wharton, spoke in the opening plenary at PHYSOR 2026 about the critical inflection point we are at in the reactor physics community and Studsvik Scandpower's key role in the nuclear industry.



Pictured: Art Wharton, President, Studsvik Americas and President, Studsvik Scandpower Group

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## UGM 2026

Join us in San Antonio, Texas for the annual User Group Meeting!



Join us in **San Antonio, Texas** for the 2026 Studsvik Scandpower User Group Meeting!

**Dates:** July 27 - 30, 2026

**Location:** The Westin RiverWalk, San Antonio

420 West Market Street, San Antonio, TX 78205, US

The Studsvik Scandpower User Group Meeting (UGM) provides Studsvik software users with the opportunity to share lessons-learned and best practices among one another, as well as provide direct feedback to the Studsvik team on software capabilities.

**Agenda Overview:**

Monday, July 27th | Welcome Reception

Tuesday, July 28th | Technical Presentations

Wednesday, July 29th | Technical Presentations & Evening Event

Thursday, July 30th | Technical Presentations & Product Demonstrations

*For event registration and hotel information, please visit the UGM website at: [UGM 2026 Website](#)*

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# Upcoming Conferences and Events

Studsvik Scandpower staff are planning to attend a variety of industry events in 2026. We hope to see you there!



- **ANS Annual Meeting** – May 31 – June 3, 2026 (Denver, CO)
- **Utilities Service Alliance Executive Summit** – June 23 – 26, 2026 (Chicago, IL)
- **SSP User Group Meeting** – July 27 – 31, 2026 (San Antonio, TX)
- **U.S. Women in Nuclear** – August 2–5, 2026 (Seattle, WA)
- **ANS Global 2026** – August 16–20, 2026 (Chicago, IL)
- **NECX 2026** – August 24 – 27, 2026 (Dallas, TX)
- **World Nuclear Symposium** – September 9 – 11, 2026 (London, UK)
- **IAEA General Conference** – September 14 – 18m 2026 (Vienna, Austria)
- **Texas Nuclear Summit** – September 21–23, 2026 (Houston, TX)
- **TopFuel 2026** – October 12–16, 2026 (Tokyo, Japan)
- **PWR Prague 2026** – October 20–21, 2026 (Prague, Czechia)
- **ANS Winter Meeting** – November 15–18, 2026 (Phoenix, AZ)

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# Studsvik

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