



Application report

# Independent QA of Gamma Knife<sup>®</sup> Perfexion treatment planning with RadCalc



UNIVERZITETSKI KLINIČKI CENTAR SRBIJE  
KLINIKA ZA NEUROHIRURGIJU  
CENTAR ZA NEUROONKOLOGIJU  
ODELJENJE RADIOHIRURGIJE  
GAMA NOŽ



# Safety first

## Independent quality assurance of complex SRS treatment plans

### Background

The University Clinical Centre of Serbia's National Gamma Centre in Belgrade, established in 2015, is a renowned radiotherapy center that provides high-quality stereotactic radiosurgery (SRS) treatment. The center addresses a wide range of disease indications, including brain metastases, vestibular schwannoma, meningioma, and vascular disorders

in the brain. To ensure the accuracy and precision of complex SRS treatment plans, the medical physicists at the center rely on LAP's RadCalc Gamma Knife module for independent dosimetric verification.

→ *For more information on the National Gamma Centre in Belgrade see [www.kcs.ac.rs](http://www.kcs.ac.rs)*

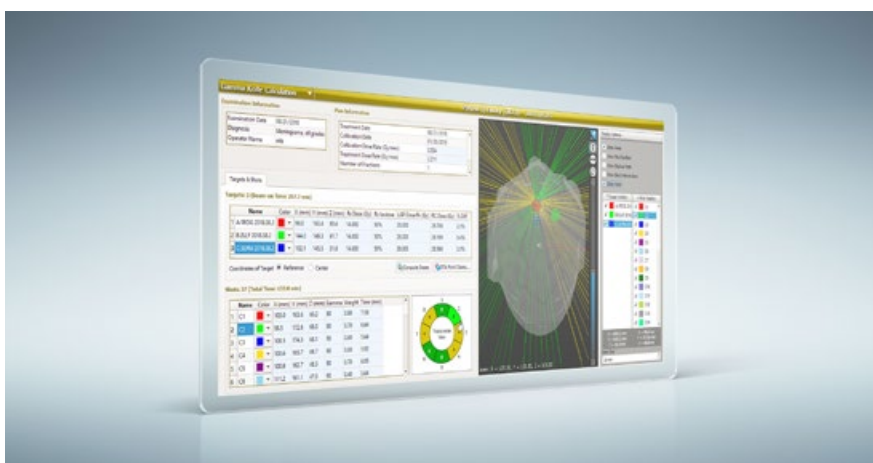
## The System

The core of the SRS program at the National Gamma Centre is Elekta's Leksell Gamma Knife Perfexion treatment system, which utilizes the GammaPlan Treatment Planning System (TPS). The RadCalc Gamma Knife software module is a vital

component of the system. It offers a comprehensive set of QA tools that enable radiation oncology teams to verify and validate their treatment plans with automated dosimetric calculations and independent verification capabilities.



Find out more  
about RadCalc



### RadCalc Gamma Knife module

RadCalc performs point dose verification calculations for various Gamma Knife versions and the Leksell GammaPlan (LGP) planning system. RadCalc stores and maintains a copy of the Elekta proprietary data providing independent table lookup and interpolation processes. External contour determination from skull scalar instrument measurements or thresholded images is independent along with the ray-tracing process for depth determination.



### Ljubomir Kurij

Ljubomir Kurij is Chief Medical Physicist at the National Gamma Center, University Clinical Centre of Serbia. Currently pursuing a Ph.D. degree, Mr. Kurij has a specialization in medical physics from the University of Belgrade, Faculty of Medicine, and holds a Master of Science degree in Applied Physics and Computer Information Systems. In his role, Mr. Kurij assumes diverse responsibilities, including the planning and supervision of technology implementation and upgrades for Stereotactic Radiosurgery (SRS). He also oversees dosimetry and Quality Assurance (QA) activities within the Medical Physics Department, ensuring compliance with established protocols. Furthermore, Mr. Kurij provides guidance and supervision for treatment planning activities related to SRS.

Accurate and reliable

# RadCalc Gamma Knife module in clinical application

Implementing the RadCalc Gamma Knife module at the National Gamma Centre has improved the SRS workflow.

The software seamlessly integrates into their daily operations with its intuitive interface and minimal training requirements. Medical physicists at the center utilize the software daily to verify SRS treatment plans, providing

independent quality assurance of the GammaPlan treatment planning.

RadCalc offers a virtual quality assurance machine that performs dose calculations, percent differences, and point-dose calculations, utilizing proprietary data and algorithms independent of the Elekta system.

**“RadCalc enables independent, accurate, and reliable verification of treatment plans, reducing the need for time-consuming QA measurements with phantoms and minimizing interruptions to the SRS workflow.”**

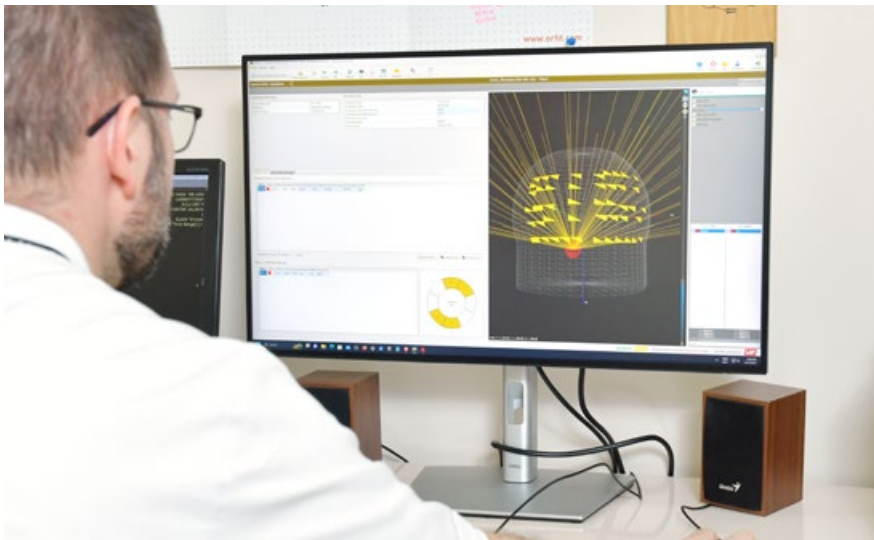
**Ljubomir Kurij,**

Chief medical physicist,  
National Gamma Centre in Belgrade

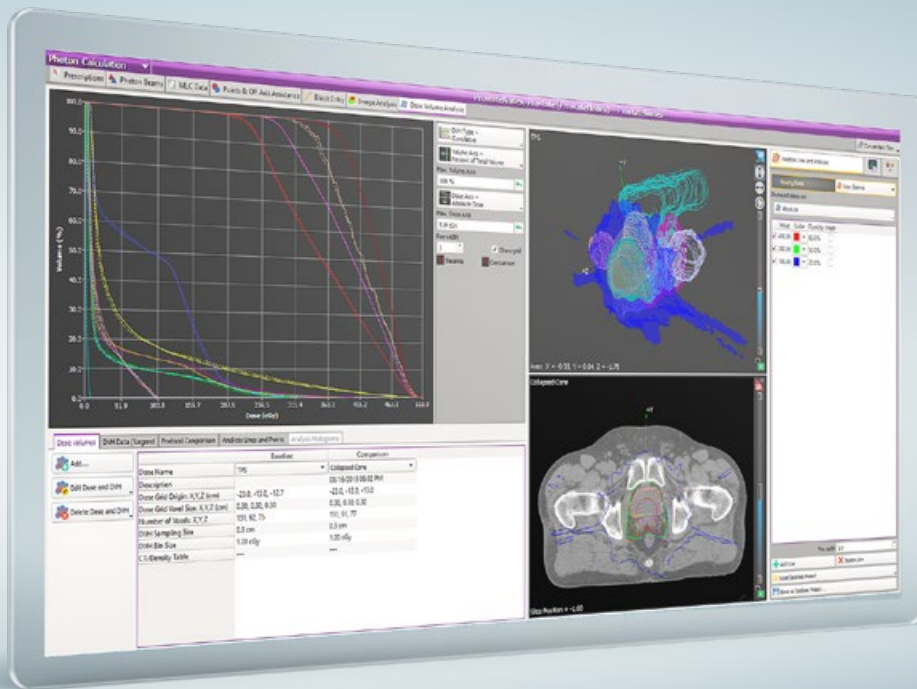
The RadCalc Gamma Knife module has become indispensable for the University Clinical Centre of Serbia's National Gamma Centre. By ensuring independent QA and dosimetric verification for Gamma Knife Perfexion treatment planning, RadCalc significantly enhances the SRS workflow's accuracy, efficiency, and confidence.



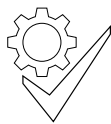
Harnessing the power of Elekta Leksell GammaPlan 10.2.1, while crafting an intricate SRS treatment plan for a patient.



With its user-friendly interface and powerful features, RadCalc empowers medical physicists to deliver exceptional patient care while optimizing resource utilization and maximizing patient throughput.

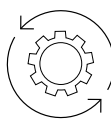


## Benefits at a Glance



### Enhanced QA

The RadCalc Gamma Knife module ensures accurate and precise dosimetric verification, enhancing the quality assurance of SRS treatment plans.



### Streamlined workflow

With an intuitive interface and minimal training requirements, RadCalc seamlessly integrates into the clinical workflow, optimizing efficiency.



### Increased reassurance

RadCalc provides an additional verification level, instilling confidence in treatment plans and enhancing patient safety.



### Time and cost savings

RadCalc eliminates the need for time-consuming QA measurements, saving valuable time and resources.

# About us

LAP is one of the world's leading suppliers of systems that increase quality and efficiency through laser projection, laser measurement, and other processes. Every year, LAP supplies 15,000 units to customers in industries as diverse as radiation therapy, steel production, and composite processing. LAP employs 300 people at locations in Europe, America and Asia.



In order to achieve this vision, we look for associates and business partners who share our passion to serve others through their hard work and dedication to excellence in all they do every day. We do our best to create a work environment that encourages our associates to listen to their customers, both inside and outside our company and to deliver results with integrity.

LifeLine Software, Inc., the developer of RadCalc, is part of the LAP Group. We are driven to improve the lives of those who fight cancer. We help to assure that they are receiving quality treatments. Our goal is to create the highest quality software products. We strive to achieve this goal by our commitment and dedication to continuous improvement of all we do in responding to the needs of our customers for the benefit of the patients and families they serve.



RadCalc is our commitment to responding to the needs of Radiation Oncology health care providers by contributing to the enhancement of the quality of their work, and to the quality of life of their patients. RadCalc was developed by our board-certified physicist to make independent Dosimetric calculation verification accurate, quick, and easy.

## Request a demo

We are ready to build your RadCalc QA package customized to your specific needs. Please contact our sales teams worldwide.

P +1 866 592 1343  
E [info@lap-laser.com](mailto:info@lap-laser.com)

## Contact us!

P +1 866 592 1343  
E [info@lap-laser.com](mailto:info@lap-laser.com)  
**in** LAP Laser  
**▶** [laplaser](#)

**LAP GmbH Laser Applikationen**  
**Zeppelinstr. 23**  
**21337 Lüneburg**  
**Germany**

LAP GmbH Laser Applikationen, Germany / LAP Measurement Technology GmbH, Germany / LAP FRANCE SAS, France  
LAP Laser Applications Asia Pacific Pte. Ltd., Singapore / LAP Laser Applications China Co. Ltd., China / LAP of America Laser Applications, L.L.C., USA / LifeLine Software, Inc., USA / Our worldwide partners: Argentina / Australia / Brazil / Bulgaria / Canada / Chile / Colombia / Croatia / Czech Republic / Dominican Republic / Egypt / Finland / Greece / Hungary / India / Indonesia / Italy / Japan / Jordan / Kuwait / Latvia / Lebanon / Lithuania / Malaysia / Mali / Malta / Mexico / Netherlands / Norway / Oman / Philippines / Poland / Portugal / Qatar / Romania / Saudi Arabia / Slovakia / Slovenia / South Africa / South Korea / Spain / Sweden / Switzerland / Taiwan, China / Thailand / Turkey / United Arab Emirates / United Kingdom / Venezuela / Vietnam / Zambia

**[www.radcalc.com](http://www.radcalc.com)**

RadCalc and LAP are registered trademarks of LAP in several countries worldwide including the USA and EU. Gamma Knife and Elekta are registered trademarks of Elekta AB. These trademarks as well as designations of other companies and products are used for identification purposes only (e.g. to inform about the compatibility). The use of any of these trademarks by third parties may infringe the rights of the respective owners.