Instytut Badań Systemowych
Polskiej Akademii Nauk

SEMINARIUM INSTYTUTOWE

23 października 2024 r., środa, godz. 12:00-14:00
Sala 200

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Limitations and knowledge gaps in current radiotherapy treatment planning

For each cancer patient to be treated with radiotherapy, a treatment plan has to be established. This treatment plan contains the 'optimal' treatment unit settings for the patient (e.g. beam intensities and angles), resulting in favourable balance between the probability of cure and the avoidance of high grade radiation-induced toxicity. Depending on many factors, establishment of the treatment plan is performed purely by solving a mathematical optimization problem, or by human interaction with an optimization algorithm. Although big advancements have been made in the quality of generated plans, there is still a need for substantial improvements. Furthermore, new upcoming radiotherapy treatment approaches require new optimization algorithms for treatment plan generation. This lecture will focus on limitations of current planning and on existing knowledge gaps.