



cordially invites you to an

Interdisciplinary Seminar

with

NIMBioS Postdoctoral Fellows Invited Distinguished Visitor

Dr. Urszula Ledzewicz

on

“Optimal protocols for combination therapies in cancer: How much, how often, in what sequence?”

Tuesday, April 19, 2016

3:30-5 p.m.

Reception & refreshments at 3 p.m.

Hallam Auditorium, Room 206

1122 Volunteer Boulevard



[Urszula Ledzewicz](#) holds the position of Distinguished Research Professor at Southern Illinois University Edwardsville. Her field of interest is the application of tools of optimal control to mathematical models in biomedicine, more precisely, models for cancer treatments. She is the author of over 140 papers and two extensive research monographs published by Springer, the last one "Optimal Control for Mathematical Models of Cancer Therapies" published in October 2015. She is a member of nine editorial boards and recipient of several research grants from the NSF and other funding agencies.

Abstract: The questions “how much, how often, and in what sequence” anti-cancer drugs should be given to secure an optimal outcome are essential and far from being answered yet. Also, simple answers are not always the best ones. Actually, there is mounting medical evidence that “more is not necessarily better” and a properly calibrated dose that takes into account this complexity can lead to a better outcome. This has generated a search for what is called the biologically optimal dose (BOD) in the medical literature. Formulating mathematical models with an objective that reflects the overall goal of the therapy, like minimizing the tumor size and side effects, maximizing the actions of the immune system, etc., leads to optimal control problems where mathematical analysis can answer some of these questions in a theoretical framework. In this talk, we present some of these problems, addressing challenges and open questions. The results of the analysis will be compared with medical and experimental data.



The seminar will be live streamed. Visit
<http://www.nimbios.org/videos/livestream>.
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