

BI-CO MATHEMATICS
COLLOQUIUM

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*“Evolutionary Dynamics of
Targeted Cancer Therapy”*

Monday, February 3, 2014

Talk at 4:00 – Park 338
Tea at 3:30 – Park 355, Math Lounge

Abstract:

In solid tumors, targeted treatments can lead to dramatic regressions, but responses are often short-lived because resistant cancer cells arise. Using a mathematical model of the evolutionary dynamics of cancer in response to treatment and two clinical data sets, we find that dual therapy can result in long-term disease control in most patients, if there are no single mutations that cause cross-resistance to both drugs. We also find that simultaneous therapy with two drugs is much more effective than sequential therapy. Our results provide realistic expectations for the efficacy of new drug combinations and inform the design of trials for new cancer therapeutics.

BRYN MAWR COLLEGE