SHIFTING PARADIGMS: COMPLEX ADAPTIVE SYSTEMS IN NEUROSCIENCE AND PSYCHOTHERAPY

ICCS Workshop, 6 PM Thursday July 26

Crispus Attucks Auditorium

Chair: Prof. Yakov Shapiro, University of Alberta, Edmonton, Canada

Co-chair: Dr. J. Rowan Scott, University of Alberta, Edmonton, Canada

9th International Conference on Complex Systems, ICCS 2018
July 22-27, 2018, Cambridge, MA

Linear models of psychopathology and its treatment are severely limited in integrating the emergent dynamics of human experience and perpetually shifting complexity of the relational matrix between the patient and their caregiver. The legacy of the Cartesian split between brain and mind processes has led to a proliferation of descriptive neurochemical and behavioral models of psychopathology, which leave little space for conscious agency or emergent dynamics of therapeutic alliance. The paradox of reductive epiphenomenalism of consciousness (REC) is nowhere more evident than in the widely divergent languages of neuroscience and psychotherapy, which either rely on reductive logic to the exclusion of subjective experience, or ignore the need for a natural science approach altogether.

Nonlinear modeling of emergent dynamics inherent in the causal efficacy of therapeutic alliance and patient/therapist subjective systems of meaning strongly argues for expanding the limits of the conventional reductive framework into a meta-reductive paradigm (MRP) in neuroscience and psychotherapy. Information-based languages of complexity theory can serve as a bridge between the patient's "first-person" subjective experience and the therapist's "third-person" observational perspective. Conceptualizing brain/mind as a *complex adaptive system* (CAS)

allows clinicians to create a psychobiological "map of the mind," where recurrent patterns of thinking, feeling, and relating can be analyzed by modeling neural network and subjective informational processes on the individual *adaptive landscape*. The patient's life trajectory is mapped over its healthy and pathological *attractor/repellor configurations*. The model is operationalized as Dynamical Systems Therapy (DST).

Dynamical Systems Therapy stands as a trans-theoretical model with the explanatory power to integrate systems of synaptic networks with systems of meaning. Clinicians learn to shift from acting as "objective observers" of the patient's psychopathology to engaging as "participant observers" who co-create the therapeutic outcome; from trying to fix the patient's symptoms to understanding the meaning behind their pathological pattern formation; from applying generic evidence-based algorithms for categorical disorders to facilitating the unique adaptive trajectory of a patient/therapist system. Patients are now seen as intentional agents who actively construct their subjective and interpersonal reality, and each patient-therapist pair operates at the intersection of their A-landscapes, with emergent configurations arising in the joint intersubjective space.

This workshop is based on the book chapter: "Dynamical systems therapy (DST): Complex adaptive systems in psychiatry and psychotherapy" published in the Handbook of Research Methods in Complexity Science: Theory and Application, Mitleton-Kelly, E et al (eds), London: Edward Elgar Publ., 2018.