THE THIRD PROFESSOR CHAR-NIE CHEN DISTINGUISHED LECTURE AND SYMPOSIUM:

The Road Less Travelled - a 40-year-journey of psychiatric epidemiology across lifespan in Hong Kong

Faculty of Medicine
The Chinese University of Hong Kong

香港中文大學
The Chinese University of Hong Kong

Organized by:

Department of Psychiatry CUHK

25 November 2023 (Saturday)
13:00 – 17:30 (afternoon session), 19:00 – 22:00 (evening session)

Hung Hum Room 1 – 2, Level, Kerry Hotel, Hong Kong, 38 Hung Luen Road, Hung Hom

KEYNOTE SPEAKERS AND 2023 DISTINGUISHED VISITING PROFESSORS OF CNC FOUNDATION

Professor Raquel E. GUR, M.D. Ph.D.

The Karl and Linda Rickels Professor of Psychiatry
Director of Neurodevelopment and Psychosis Section & the Lifespan Brain Institute
Department of Psychiatry
University of Pennsylvania

Professor Ruben C. GUR, Ph.D.

Professor of Psychiatry
Director of Brain Behavior Laboratory & Neuroimaging and Cognitive Core (NICC)
Department of Psychiatry
University of Pennsylvania

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For enquiries, please contact Ms. Cheryl Leung
(Tel: 2607-6025 / Email: cherylleung@cuhk.edu.hk)

MODERATOR AND OTHER SPEAKERS

Professor Char-Nie CHEN
Emeritus Professor
Foundation Chairman
Department of Psychiatry
The Chinese University of Hong Kong

Professor Yun Kwok WING
Chairman
Choh-Ming Li Professor of Psychiatry
Department of Psychiatry
The Chinese University of Hong Kong

Professor Linda Chiu Wa LAM
Professor
Department of Psychiatry
The Chinese University of Hong Kong

Professor Sandra Sau Man CHAN
Professor
Department of Psychiatry
The Chinese University of Hong Kong

Dr. Allen Ting Chun LEE
Associate Professor
Department of Psychiatry
The Chinese University of Hong Kong

Dr. Oscar Wing Ho WONG
Assistant Professor
Department of Psychiatry
The Chinese University of Hong Kong

Dr. Rachel Ngan Yin CHAN
Assistant Professor
Department of Psychiatry
The Chinese University of Hong Kong

Dr. Tim Man Ho LI
Research Assistant Professor
Department of Psychiatry
The Chinese University of Hong Kong

Dr. Joanne Bei HUANG
Research Assistant Professor
Department of Psychiatry
The Chinese University of Hong Kong

THE THIRD
PROFESSOR CHAR-NIE CHEN DISTINGUISHED LECTURE I

Professor Raquel E. GUR, M.D. Ph.D.

Topic: Towards "Precision Psychiatry": Integrating rare and common variants approaches. To investigate pathways to psychosis.

Abstract:

As is the case in other fields of medicine, symptom-based diagnosis and treatment are being replaced with mechanistic accounts that are based on gene discovery and biology. This Precision Medicine approach is particularly challenging in psychiatry because of the complexity of the target organ, brain, and correspondingly its product, behavior. Heterogeneity of the genetic architecture of psychosis implicates both common and rare genetic variants, the former allowing the generation of polygenic risk scores (PRS) that confer small effect sizes, while the latter can help identify rare variants with large effect sizes that can point to more specific mechanisms. Together these complementary lines of investigation may enhance discovery of biomarkers for early identification and intervention.

The presentation will first highlight multimodal lines of research examining the psychosis dimension in the population at large and in 22q11.2 deletion syndrome (22qDS) that confers a 25-fold increased risk for psychosis. The methodology involves integration of clinical presentation and course, neurobehavioral functions, and multimodal neuroimaging. Using 22qDS as a translational window, rodent models probing neurobehavioral domains in humans and iPSC investigations are explored to understand the neurobiology and advance therapeutics.

The final part will discuss the challenges and promises of such convergent efforts, with special emphasis on how students, fellows and junior faculty can make major contributions to advancing the Precision Psychiatry agenda.

Biography:

Raquel E. Gur MD PhD is the Karl and Linda Rickels Professor of Psychiatry and leads the Neurodevelopment & Psychosis Section of the Department of Psychiatry at Penn. She is Senior Vice Chair for Research and Penn-CHOP Research Integration, Co-Director of the Penn Translational Neuroscience Center, and Director of the Lifespan Brain Institute at the University of Pennsylvania School of Medicine and the Children's Hospital of Philadelphia. She holds secondary professorial appointments in the Departments of Neurology and Radiology.

Her academic career focuses on studying brain and behavior in psychosis across the lifespan. Her research integrates basic and clinical neuroscience to understand the pathology of psychosis. She has directed and participated in collaborative grants on schizophrenia spectrum disorders, combining clinical, neurocognitive, neuroimaging, electrophysiology, and genomics. She founded and leads the Lifespan Brain Institute, facilitating large-scale collaborative studies on brain and behaviour. Her current efforts involve studying early precursors and initial phases of psychosis within a neurodevelopmental genomics framework, including longitudinal follow-up and treatment studies of youth with psychosis spectrum features. Her work explores genetic and environmental factors, such as exposure to stress and poverty. She collaborates on projects related to informative populations like 22q11.2 Deletion Syndrome, which has an increased risk for psychosis.

She is a member and has served in multiple organizations including the Institute of Medicine of the National Academy of Sciences, the NIMH Council and the American Psychiatric Association task forces including the DSM-5 Psychosis work group. She is Past President of both the Society of Biological Psychiatry and the American College of Neuropsychopharmacology. NIMH has supported her research efforts and she has over 600 publications in peer-reviewed journals.

THE THIRD
PROFESSOR CHAR-NIE CHEN DISTINGUISHED LECTURE II

Professor Ruben C. GUR, Ph.D.

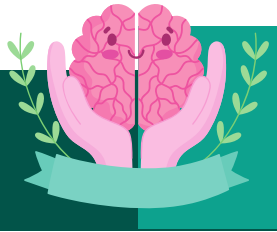
Topic: Linking brain and behavior with multimodal neuroimaging: A personal and professional journey.

Abstract:

The quest to understand how brain systems support and regulate behavior has been the challenge of neuroscience since the inception of the field. Early efforts have used the clinical-pathological correlation methodology, where behavioral deficits such as speech impairment have been linked to brain regions showing abnormalities in post-mortem examination. This methodology was supplemented by the development of neuropsychological testing that permitted better ante-mortem assessment of behavioral domains, but the ability to link these domains to brain systems remained limited. The development of neuroimaging methods has vastly accelerated progress, revolutionizing the pace of discovery and understanding. The presentation will start with a glimpse at the past and will proceed to describe how neuroimaging methods are harnessed to probe brain systems using behavioral experimentation. The concerted research effort has been like treading a tightrope of collecting as much behavioral data as possible with limited time because the methodology is expensive and every minute of data collection adds to participant burden as well. Furthermore, measurement had to be computerized to synchronize with neuroimaging. Novel methods were established to make the behavioral assessment efficient, and over time, the computerized neurocognitive battery (CNB) has been created, which is now web-based and placed in the public domain. This battery was used as a major tool in the Philadelphia Neurodevelopmental Cohort (PNC) and has also been administered in multiple national and international projects, including COGS, PAARTNERS, MGI, Army STARRS, Marines resiliency study, HCP, NASA and many others. More recently, more advanced psychometric tools have been applied to further improve the efficiency of the battery and make it adaptive using item response theory and associated methodology. The presentation will describe this process and highlight findings that elucidate normative brain development in relation to behavioral measures, as well as sex differences and the effects of aging.

Biography:

Ruben Gur is a neuropsychologist who has been studying brain-behavior relationships in both healthy people and clinical populations and principal or co-investigator on numerous NIH-funded projects and center grants. He is experienced with a broad range of clinical assessment and neuroimaging methods. With collaborators who pioneered the measurement of brain structure and function parameters in alive humans, he was among the first to apply “neuroimaging” to the study of brain and behavior. He has contributed to many discoveries on brain behavior relations, including effects of maturation and aging, sex differences, effects of stress and anxiety, emotion regulation, deception, and abnormalities associated with neuropsychiatric disorders. For the past decade, his research has focused primarily on developing behavioral measures that integrate with multimodal MRI to chart normative development and aberrations in individuals at risk for mental illness. His tools are in the public domain and have facilitated interdisciplinary collaborations across the globe. Among the tools we have developed is the Penn computerized neurocognitive battery (CNB) for performance assessment. It is used in multiple genomic studies including the Philadelphia Neurodevelopmental Cohort, the Human Connectome Project, the Army STARRS project, NCANDA-A, Marines Resiliency Study, Genes to Mental Health Network, the Ancestral Population Network and NASA.



Shatin Community Mental Health Survey: A 40-Years' Reflection on Opportunities and Challenges.

Professor Char-Nie CHEN

Emeritus Professor
Foundation Chairman
Department of Psychiatry
The Chinese University of Hong Kong

Without a generous research grant from Sir John Keswick, KCMG (1906-1982), a former taipan of the Jadine, Matheson Co., through the Keswick Foundation, it would be impossible to set up such a project in a new department of psychiatry of a brand-new medical school! It was indeed a golden opportunity for us when the new department was started from scratch, literally speaking, from one person with a dream. When I met Darrel Regier at the National Institute of Mental Health (NIMH) in the early 1980s, he turned to his colleagues: "Look, this crazy guy is single-handedly trying to conduct a project like the ECA (Epidemiologic Catchment Area) study!!" Indeed, scholars in well-gifted countries may hardly understand their counterparts in resource-limited countries how difficult it was for them to struggle and work through their dreams.

Our original idea was to establish a permanent Psychiatric Epidemiology Research Unit (PERU) with Shatin Community Mental Health Survey (SCMHS) as its first background work. It was indeed a challenge to achieve such a plan. With the donation and the support from our vice-chancellor, dean, and clinical staff, as well as extramural advisor such as Professor Lee Robins, we managed to build up PERU in two years, and another two years to conduct the SCMHS. Around this time, our original donor passed away. His successor insisted that the research donation was only for the survey, therefore the rest of the money after the survey had to be returned to the donor. The consequence was a disbanded PERU and the departure of all research staff. Another challenge was to get the data published. It took two years to get it accepted by over a dozen journal assessors, and another 12 months for it to be finally published in January 1993. By then, our dream of setting up a permanent PERU became nothing but a fantasy.

[1] Chen, C.N. (1981). The need for a Psychiatric Epidemiology Research Unit. Hong Kong Journal of Mental Health, 9(3): 7-8.