John Wermer Memorial Symposium

Schedule

SATURDAY - 11/18/23		
9:30-10:00 AM	Coffee/Refreshments	Kassar House Common Room
10:00-10:45 AM	**Dmitry Khavinson** University of South Florida	**Title:** Approximation Theory and Some Free Boundary Problems **Abstract:** I shall try to outline the program started 4 decades ago (at Brown, in fact) that focuses on approximating particular “badly approximable” functions that leads to unexpectedly exciting problems in mathematical physics. So called free boundary problems. For example studying the approximation of z* by analytic functions leads to the isoperimetric inequality, J. Serrin’s problem in hydrodynamics, equilibrium shape of electrified droplets, St. Venant’s inequality for torsional rigidity, etc. Many simply stated open questions, that still remain open in spite of the recent progress in the last decades, will be mentioned. The talk should be accessible to everyone.
11:00-11:45 AM	**John McCarthy** Washington University in St. Louis	**Title:** Isometric extensions of holomorphic functions **Abstract:** Suppose V is a subvariety of an open set U in C^n. When does the pair (V,U) have the property that every holomorphic function from V to the unit disk extends to a holomorphic function from U to the unit disk? If U is very nice (eg a ball) then V has to be a retract. But without convexity assumptions, almost anything can happen. We will talk about what is known, and why convexity plays a role.
11:45-1:1 5PM	Lunch Break	
1:15-2:00 PM	**Norman Levenberg** Indiana University, Bloomington	**Title:** Weighted holomorphic polynomial approximation **Abstract:** Which continuous functions on [0,1] can be uniformly approximated by a sequence of "incomplete" polynomials {p_n}, deg(p_n)=n, i.e., p_n is a linear combination of monomials x^k with k bigger than a for some 0<a<1? The answer comes from weighted potential theory. We discuss this background as motivation for more recent results on weighted holomorphic polynomial approximation in the complex plane and some observations in the several complex variable setting. This is joint work with S. Charpentier and F. Wielonsky (Université Aix-Marseille).
2:15-3:00 PM	**James Brennan** University of Kentucky	**Title:** The Property of Unique Continuation in Certain Spaces Spanned by Rational Functions on Compact Nowhere Dense Sets **Abstract:** It has been known for over a century that certain large classes of functions defined on a compact nowhere dense subset X of the complex plane, and obtained as limits of analytic functions in various metrics, can sometimes inherit the property of unique continuation characteristic of the approximating family. I shall discuss the subject from an historical point of view beginning with E´mile Borel’s confrontation with Poincar´e at his thesis defense in 1892, adding along the way some new results on the existence of boundary values for certain L2-spaces defined on sets without interior points together with a more direct approach to finely holomorphic functions.
3:00-3:45 PM	Coffee/Refreshments	Kassar House Common Room
3:45-4:30 PM	**John Garnett** University of California, LA	**Title:** H1 − BMO Duality Revisited **Abstract:** Among the domains in Rd+1 satisfying a corkscrew condition and a boundary capacity density condition we study those for which an H1 − BMO duality theorem holds for harmonic functions, in two different formulations.
6:00-9:00 PM	Banquet Dinner	Brown University Faculty Club (Invitation Only) 1 Bannister Street, 2nd Floor, Landscape Room

SUNDAY 11/19/23		
9:30-10:00 AM	Coffee/Refreshments	Kassar House Common Room
10:00-10:45 AM	**Marshall Whittlesey** California State University, San Marcos	**Title:** Fibered polynomial hulls: work of Wermer and work of others that followed **Abstract:** I will survey some of John Wermer's work in polynomial hulls of sets fibered over the circle and discuss some connections to work of others.
11:00-11:45 AM	**Brian Cole** Brown University	**Title:** Interpolation by bounded analytic functions and positive harmonic functions **Abstract:** In 1916 Pick characterized those values that can be interpolated by a bounded analytic function at n points on the unit disk D. The set K of those values is called the associated interpolation body. We generalize these problems and reformulate all concepts in terms of uniform algebras. Next, consider all non-negative harmonic functions defined on an open subset of Euclidean space. The set Λ of all values that can be interpolated by such functions is analogous to K. In some cases, we show that Λ is a semialgebraic set. Some of these results derive from joint work with John Wermer and Keith Lewis.
11:45-1:15 PM	Lunch Break	
1:15-1:45 PM	**Keith Lewis** New York University	**Title:** Efficient Portfolios **Abstract:** Given two random realized returns on an investment, which is to be preferred? This is a fundamental problem in finance that has no definitive solution except in the case one investment always returns more than the other. In 1952 Markowitz and Roy introduced the following criterion for risk vs. return in portfolio selection: if two portfolios have the same expected realized return then prefer the one with smaller variance. An efficient portfolio has the least variance among all portfolios having the same expected realized return. The primary contribution of this short note is the observation that the CAPM formula holds for realized returns as random variables, not just their expectations. This follows directly from writing down a mathematical model for one period investments.
1:55-2:25 PM	**Bruno Harris** Brown University	**Title:** "John Wermer at Yale" **Abstract:** John Wermer's first academic appointment was as Instructor at Yale (1951),where he helped write the Dunford- Schwartz 3-volume book on Linear Operators and taught the Complex Analysis Graduate course. This speaker was a student in this course, and will describe the Mathematical atmosphere at Yale and the many links created by John between Yale and Brown.
2:35-3:05 PM	**Ted Gamelin** University of California, LA	**Title:** Recollections of John Wermer and the Early Years of Function Algebras.
3:10-4:00 PM	Coffee/Refreshments	4:45OM – 151 Thayer Street to Hotel 5:00PM – 151 Thayer Street to Hotel Kassar House Common Room

Hampton Inn & Suites Providence Downtown

58 Weybosset Street, Providence, RI

Shuttle Schedule

Saturday-11/18

9:15 AM – Hampton Inn to 151 Thayer Street
9:30 AM – Hampton Inn to 151 Thayer Street

4:30 PM – 151 Thayer Street to Hampton Inn
4:45 PM – 151 Thayer Street to Hampton Inn

5:30 PM – Hampton Inn to Brown Faculty Club (banquet dinner)
5:45 PM – Hampton Inn to Brown Faculty Club (banquet dinner)

8:45 PM – Brown Faculty Club to Hampton Inn
9:00 PM – Brown Faculty Club to Hampton Inn

Sunday-11/19

9:15 AM – Hampton Inn to 151 Thayer Street
9:30 AM – Hampton Inn to 151 Thayer Street

4:45 PM – 151 Thayer Street to Hampton Inn
5:00 PM – 151 Thayer Street to Hampton Inn