Speaker: Rob Archbold (University of Aberdeen).
Title: Strength of convergence.
Abstract: What might it mean for a sequence in a metric or topological space to converge k-times (e.g. 2-times)? We discuss this question for spaces with group actions and their orbit spaces. The ideas link phenomena in improper transformation groups, in the coadjoint action for nilpotent Lie groups, and in the representation theory of C^*-algebras and their crossed products.

Speaker: Berndt Brenken (University of Calgary).
Title: A dynamical core for topological graphs.
Abstract: A topological graph (or quiver) G is a directed graph where the edge and vertex spaces are topological spaces. The C^*-algebra of the graph is a Cuntz–Pimsner algebra of an associated correspondence over a C^*-algebra. For a given graph we construct and abstractly characterize a subgraph yielding the iterative dynamical core of the original graph. The C^*-algebra of this subgraph is a quotient of the C^*-algebra of G, and under some assumptions is a crossed product C^*-algebra by an endomorphism.

Speaker: Julian Buck (University of Oregon, Eugene).
Title: A tracial Rokhlin property for automorphisms of non-simple C^*-algebras.
Abstract: We introduce an analogue of the tracial Rokhlin property (as defined by Osaka and Phillips for the $\mathbb{Z}$-action of an automorphism on a simple, separable, unital, stably finite, infinite dimensional C^*-algebra) for non-simple C^*-algebras which need not necessarily contain many projections. We will show that for a minimal homeomorphism of a compact metric space X, the induced automorphism of $C(X)$ has this property. We will also show that if A is a C^*-algebra, α is an automorphism of A with this property, and A has no non-trivial α-invariant ideals, then the crossed product $C^*(\mathbb{Z}, A, \alpha)$ is simple, and its tracial state space is bijective with the space of α-invariant tracial states on A. We also discuss some of the structural questions for crossed products that we hope to answer.

Speaker: Gilles Castro (Université d'Orléans).
Title: C^*-algebras associated to iterated function systems.
Abstract: Iterated function systems (IFS) started within the theory of fractals and many known simple examples of fractals can be constructed from such systems. We present some of the results by Jorgensen and Bratteli about representations of the Cuntz algebra arising from IFS, we discuss a scheme suggested by Ionescu and Muhly in how to go from an IFS to the

C^*-algebra of a groupoid and compare it to the algebras defined by Kajiwara and Watatani. By doing this, we show how Kajiwara and Watatani algebras can be seen as subalgebras of a Cuntz algebra and show an isomorphism to the crossed product by an endomorphism in the case the IFS are the inverse branches of a continuous function.

Speaker: Erik Christensen (University of Copenhagen).
Title: Perturbation of C^*-algebraic invariants.
Abstract: Kadison and Kastler introduced in 1973 the concept of "Perturbation of Operator Algebras". They defined two C^*-subalgebras of a third C^*-algebra to be "close" if their unit balls are near each other in the Hausdorff metric coming from the norm. In the talk I will show that K-theory, trace spaces, nuclearity and some other properties used in the classification program are stable under small perturbations.
This is joint work with Allan M. Sinclair (Edinburgh), Roger R. Smith (Texas A&M), and Stuart White (Glasgow).

Speaker: Kenneth R. Davidson (University of Waterloo).
Title: A survey of semi-crossed product operator algebras.
Abstract: I will discuss the literature on non self-adjoint operator algebras constructed by a (generally one-sided) dynamical system on a (locally) compact space or more generally on a C^*-algebra. In particular, I will focus on my recent work with Katsoulis.

Speaker: Ruy Exel (Universidade Federal de Santa Catarina, Florianópolis).
Title: Noncommutative Cartan subalgebras of C^*-algebras.
Abstract: J. Renault has recently found a generalization of the characterization of C^*-diagonals obtained by A. Kumjian in the eighties, which in turn is a C^*-algebraic version of J. Feldman and C. Moore's well known theorem on Cartan subalgebras of von Neumann algebras. Here we propose to give a version of Renault's result in which the Cartan subalgebra is not necessarily commutative [sic]. Instead of describing a Cartan pair as a twisted groupoid C^*-algebra we use N. Sieben's notion of Fell bundles over inverse semigroups which we believe should be thought of as "twisted étale groupoids with noncommutative unit space". En passant we prove a theorem on uniqueness of conditional expectations.

Speaker: Thierry Giordano (Université d´Ottawa).
Title: Topological orbit equivalence of free, minimal actions of $\mathbb{Z}^d$ on the Cantor set.
Abstract: In 1959, H. Dye introduced the notion of orbit equivalence and

proved that any two ergodic finite measure-preserving transformations on a Lebesgue space are orbit equivalent. He also conjectured that an arbitrary action of a discrete amenable group is orbit equivalent to a $\mathbb{Z}$-action. This conjecture was proved by Ornstein and Weiss and its most general case by Connes, Feldman and Weiss by establishing that an amenable non-singular countable equivalence relation R can be generated by a single transformation, or equivalently is hyperfinite, i.e., R is up to a null set, a countable increasing union of finite equivalence relations.
In the Borel case, Weiss proved that actions of $\mathbb{Z}^d$ are (orbit equivalent to) hyperfinite Borel equivalence relations, whose classification was obtained by Dougherty, Jackson and Kechris. In 1995, Giordano, Putnam and Skau proved that minimal $\mathbb{Z}$-actions on the Cantor set were orbit equivalent to approximately finite (AF) relations and their classification was given.
In this talk I will indicate the main steps of the proof of the general result obtained in a joint effort with H. Matui, I. Putnam and C. Skau and whose statement is the following:
Theorem *Any minimal, free $\mathbb{Z}^d$-action on the Cantor set is affable (i.e., orbit equivalent to AF-relations).*

Speaker: Patricia Hess (University of São Paulo).
Title: K-Theory of pseudodifferential operators with semi-periodic symbols on a cylinder.
Abstract: Let A denote the C^*-algebra of bounded operators on $H = L^2(\mathbb{R} \times S^1)$ generated by

1. multiplications by the smooth functions on S^1, by 2π-periodic continuous functions on $\mathbb{R}$ and by continuous functions on X, where X is the two-point compactification of $\mathbb{R}$,
2. the operator T which is the square root of the inverse the identity minus the Laplacian on $\mathbb{R} \times S^1$,
3. the derivative with respect to the real variable composed with T, and
4. the derivative with respect to the circle variable composed with T.

We have computed the index map associated to the principal symbol exact sequence of A. We also used the exact sequence associated to other homomorphism on this algebra. At some stage, a crossed product C^*-algebra appeared and we use the Pimsner–Voiculescu exact sequence. Therefore, we are able to compute the K-groups of $A/K(H)$, where $K(H)$ is the ideal of compact operators of $B(H)$.

Speaker: Astrid an Huef (University of New South Wales, Sydney).
Title: Proper actions on C^*-algebras.
Abstract: In 1990, Rieffel formulated the notion of a proper action α of a

group on a C^*-algebra A. Under reasonable hypotheses, the reduced crossed-product C^*-algebra $A \times_{\alpha,r} G$ is Morita equivalent to a "generalized fixed point algebra" A^α in the multiplier algebra $M(A)$. In this talk I will discuss examples of proper actions and recent work of Kaliszewski, Quigg and Raeburn which shows that Rieffel's construction is natural in a categorical sense. If time permits I'll briefly talk about work in progress with Iain Raeburn (University of Wollongong) and Dana Williams (Dartmouth College) which extends the work of Kaliszewski, Quigg and Raeburn.

Speaker: Tsuyoshi Kajiwara (Okayama University).
Title: Countable bases for Hilbert C^*-modules and classification of KMS states.
Abstract: Rational maps on the Riemann sphere or some family of self similar maps on compact spaces have branched points, and then their graphs or co-graphs are considered as "branched coverings". We can construct Hilbert C^*-modules with left action of the coefficient C^*-algebra from these "branched coverings" without excluding branched points. Hilbert C^*-modules constructed from the above "branched coverings" are not finitely generated. Although the existence of countable bases follows directly from Kasparov's stabilization trick, the explicit constructions of countable bases for these Hilbert C^*-modules are not known in general. In this talk, we construct countable bases for Hilbert C^*-modules associated with rational maps and some self-similar maps explicitly. Using these countable bases, we compute the Perron–Frobenius type operators for Hilbert C^*-bimodules associated with the above "branched coverings". We also classify KMS states on Cuntz–Pimsner C^*-algebras constructed from the Hilbert C^*-bimodules associated with a rational map on the Riemann sphere and with some self similar maps with the aid of the theorem of Laca–Neshveyev. In particular, we present a complete classification of KMS states on the Cuntz–Pimsner C^*-algebras associated with rational maps on the Riemann sphere. We can recover the degree, the number of branched points and the type of exceptional points of the original rational map from the information of the Cuntz–Pimsner algebra with gauge action.
This talk is based on joint work with Y. Watatani and M. Izumi.

Speaker: Takeshi Katsura (Keio University, Yokohama).
Title: Markov shifts, directed graphs and singly generated dynamical systems.
Abstract: A one-sided topological Markov shift is an non-invertible topological dynamical system defined from a finite $\{0,1\}$-matrix A. A finite $\{0,1\}$-matrix A can be represented using a directed graph. A directed graph

itself can be considered as a kind of dynamical systems which is not only non-invertible but also non-deterministic. In my talk, I give precise meanings of these objects and explain the relation between the two dynamical systems (namely a one-sided Markov shift and a directed graph) using the notion of factor maps. I also explain the relations between two matrices (namely the vertex matrix and the edge matrix) naturally arising from a directed graph. I extend the relation between a directed graph and a one-sided Markov shift to the relation between topological graphs which I introduced and singly generated dynamical systems which J. Renault introduced, and give some comments on C^*-algebras defined by them.

Speaker: Shinzo Kawamura (Yamagata University).
Title: A chaotic property of a conjugacy connecting two tent maps.
Abstract: As is well known, a continuous map φ on a metric space is a considered as a chaotic map if φ has the following properties.

(1) The set of all periodic points for φ is dense,
(2) φ is one-sided topologically transitive,
(3) φ depends sensitively on initial conditions.

These properties are concerned with the orbit of a given initial point. Now we are studying the orbit of a probability density function changed by the iterations of a unimodal chaotic map and a more general case, in which we proved that the orbit converges to a unique function. This is considered as another chaotic property. In this talk, we show a strange property of a topological conjugacy h connecting two tent maps, which may be considered as a chaotic property. Namely, the function $h(x)$ has the following properties.

(h-1) $h(x)$ is a strictly monotone function of $[0, 1]$ onto itself,
(h-2) $h'(x) = 0$ for almost all x in $[0, 1]$,
(h-3) $h(x)$ jumps on a set whose measure is 0 but which is dense in $[0, 1]$.

Speaker: Eberhard Kirchberg (Humboldt-Universität zu Berlin).
Title: Exotic actions on the Cuntz algebra $\mathcal{O}_2$.
Abstract: A T_0 space X *acts* on a C*-algebra A by a monotone map $U \to I(U) \lhd A$ from the open subsets of X into the closed ideals of A. For $A \subset B$, there is an action of $X := \mathrm{Prim}(B)$ on A given by $I(U) := A \cap J(U)$, where $J(U)$ is the intersection of the primitive ideals $x \in X \setminus U$. Then A is "*regular*" in B if $U \to I(U)$ is injective and $I(U \cup V) = I(U) + I(V)$. We say that separable B is in the "*strong UCT class*" if $B \otimes \mathcal{O}_\infty$ contains a *regular* Abelian C*-subalgebra A such that $A \hookrightarrow B$ defines in $\mathrm{KK}(X; A, B)$ a $\mathrm{KK}(X; \cdot, \cdot)$–equivalence of A and B. If such A exists, it has the property that A and the action of X on A determine $B \otimes \mathcal{O}_\infty \otimes \mathbb{K}$ up to approximately inner isomorphisms if B is nuclear and separable, i.e., there is a canonical

reconstruction of B from (A, X) if B is strongly purely infinite, separable, stable and nuclear. The generalization to the non-simple case of the proofs for simple classification is related to the fact that *nuclear* (or exact) B with $B \otimes \mathcal{O}_2 \cong B$ have this strong UCT property. It says that a T_0 space X is the primitive ideal space of a separable nuclear C*-algebra B, if and only if,
(i) the topology of X is second countable,
(ii) every prime closed subset of X is the closure of a point,
(iii) the lattice $\mathbb{O}(X)$ is isomorphic to an sup– and inf–invariant sub-lattice of $\mathbb{O}(Y)$ for a locally compact Polish space Y.
The canonical (re-)construction of B with $\mathrm{Prim}(B) \cong X$ and $B \cong B \otimes \mathcal{O}_2 \otimes \mathbb{K}$ from $\pi \colon Y \to X$ can be used to show that *for every second countable locally compact group G and every continuous action α of G on X there is a continuous action of G on B that induces α.* In particular, $\mathrm{Aut}(B) \to \mathrm{Homeo}(X)$ is a topological group epimorphism that has a local splitting property. We use this to construct examples of G-actions on $\mathcal{O}_2$ for $G := \mathbb{R}$ and $G := \mathbb{T}$ such that $\mathcal{O}_2 \rtimes G$ is prime, and the dual $\widehat{G}$-action is topological free and minimal and is (stably) cocycle equivalent to an action on a unital algebra that is not simple. Our lecture describes the construction.
The existence and properties of this actions have been proposed by Chris Phillips (He provided the useful definition of the needed T_0 topology on l.c. groups and his assistance was decisive).

Speaker: Kengo Matsumoto (Yokohama City University)
Title: Symbolic dynamics, λ-graph systems and C^*-algebras.
Abstract: Symbolic dynamics, often called subshifts, are basic topological dynamical systems. There is a class of subshifts called sofic shifts, that contains the topological Markov shifts. Sofic shifts are presented by finite square matrices with entries in formal sums of symbols. Such a matrix is called a symbolic matrix. It is an equivalent object to a finite labeled graph called a λ-graph. Symbolic matrix systems and λ-graph systems are presentations of subshifts and generalizations of symbolic matrices and λ-graphs respectively. A symbolic matrix system $(\mathcal{M}, I)$ consists of a sequence of pairs $(\mathcal{M}_{l,l+1}, I_{l,l+1}), l \in \mathbb{Z}_+$ of rectangular symbolic matrices $\mathcal{M}_{l,l+1}$ and rectangular $\{0,1\}$-matrices $I_{l,l+1}$, where $\mathbb{Z}_+$ denotes the set of all nonnegative integers. Both the matrices $\mathcal{M}_{l,l+1}$ and $I_{l,l+1}$ have the same size for each $l \in \mathbb{Z}_+$. The column size of $\mathcal{M}_{l,l+1}$ is the same as the row size of $\mathcal{M}_{l+1,l+2}$. They satisfy the following commutation relations as symbolic matrices

$$I_{l,l+1}\mathcal{M}_{l+1,l+2} = \mathcal{M}_{l,l+1}I_{l+1,l+2}, \qquad l \in \mathbb{Z}_+.$$

A λ-graph system $\mathfrak{L} = (V, E, \lambda, \iota)$ is a graph presentation of symbolic matrix system. It is a labeled Bratelli diagram satisfying some further conditions

called local property. It consists of a vertex set $V = V_0 \cup V_1 \cup V_2 \cup \cdots$, an edge set $E = E_{0,1} \cup E_{1,2} \cup E_{2,3} \cup \cdots$, a labeling map $\lambda : E \to \Sigma$ and a surjective map $\iota_{l,l+1} : V_{l+1} \to V_l$ for each $l \in \mathbb{Z}_+$. The symbolic matrix systems and the λ-graph systems are the same objects. They give rise to subshifts by taking the set of all label sequences appearing in the labeled Bratteli diagram. The C^*-algebras $\mathcal{O}_{\mathfrak{L}}$ associated with λ-graph systems $\mathfrak{L}$ are generalizations of the Cuntz-Krieger algebras and the C^*-algebras associated with subshifts. They are universal unique concrete C^*-algebras generated by finite families of partial isometries and sequences of projections subject to certain operator relations encoded by structure of the λ-graph systems. We know ideal structure, simplicity condition and K-theory formulae for the C^*-algebra $\mathcal{O}_{\mathfrak{L}}$ from the information of the λ-graph system $\mathfrak{L}$. There is a canonical method to construct a λ-graph system $\mathfrak{L}$ from a given subshift Λ. The λ-graph system is called the canonical λ-graph system for Λ and written as $\mathfrak{L}^\Lambda$ so that $\mathcal{O}_{\mathfrak{L}^\Lambda}$ coincides with the C^*-algebra $\mathcal{O}_\Lambda$ associated with the subshift Λ. Hence they include the class of the Cuntz-Krieger algebras. Several examples of such C^*-algebras are studied. I will also mention relationship between orbit equivalence of one-sided symbolic dynamics and isomorphisms of these C^*-algebras.

Speaker: Konstantin Medynets (Institute for Low Temperature Physics, Kharkov).
Title: States on K_0-groups of stationary Bratteli diagrams.
Abstract: We provide an algorithm of computation of finite states on K_0-groups of stationary (non-simple) Bratteli diagrams. The algorithm is heavily based on the Perron–Frobenius theory of non-negative matrices. This algorithm also allows us to describe the simplex of all probability invariant measures of aperiodic (non-minimal) substitution dynamical systems.

Speaker: Igor Nikolaev (Fields Institute, Toronto).
Title: Noncommutative geometry as a functor.
Abstract: In this talk the noncommutative geometry is interpreted as a functor, whose range is a family of the operator algebras. Examples include the Gelfand functor, dynamics of the Anosov automorphisms of the two-torus, homotopy classification of solvmanifolds and complex noncommutative tori correspondence. A program is sketched.
Ref.: arXiv:0806.1728.

Speaker: Johan Öinert (Lund University).
Title: Ideals in strongly graded and crystalline graded rings.
Abstract: We shall present recent results on the intersection of ideals and

commutative subrings in strongly graded rings and crystalline graded rings.

Speaker: Hiroyuki Osaka (Ritsumeikan University, Kusatsu).
Title: The Rokhlin property for inclusions of C^*-algebras with a finite Watatani index.
Abstract: Let $P \subset A$ be an inclusion of unital C^*-algebras and $E : A \to P$ be a faithful conditional expectation of index finite type. In this talk we introduce the Rokhlin property for E and show the basic properties including

- If A is simple, then P is simple.
- If A is AF,then P is AF.
- If A is AI, then P is AI.
- If A is AT, then P is AT.
- If A has stable rank one or real rank zero, then so does P.

The typical examples are $A^\alpha \subset A$ arising from actions α of finite groups G on A, which have the Rokhlin property in the sense of Izumi. We also present an example which does not come from the crossed product construction.
This is mainly joint work with Kodaka and Teruya.

Speaker: Iain Raeburn (University of Wollongong).
Title: The Toeplitz algebra of an $ax + b$ semigroup.
Abstract: Cuntz has recently constructed a very interesting simple C^*-algebra from the $ax+b$ semigroup over the natural numbers. We will discuss joint work with Marcelo Laca in which we study the (much larger) Toeplitz algebra of this semigroup, which turns out to be quasi-lattice ordered in the sense of Nica. We run this example through the structure theory of Crisp and Laca, showing that Cuntz's algebra is the boundary quotient of the Toeplitz algebra, and calculate the KMS states for a canonical dual action of the real numbers.

Speaker: Jean Renault (Université d'Orléans).
Title: Cartan subalgebras in C^*-algebras.
Abstract: A standard construction associates to a pseudogroup of partial homeomorphisms of a locally compact Hausdorff space a C^*-algebra. When the groupoid of germs of the pseudogroup is Hausdorff, the C^*-algebra which arises in this fashion can be characterized by the existence of a nice maximal abelian self-adjoint subalgebra, called a Cartan subalgebra. More precisely, this construction establishes an equivalence of categories between twisted étale locally compact Hausdorff effective groupoids and Cartan pairs. This is a C^*-algebraic analogue of a well-known theorem of J. Feldman and C. Moore on Cartan subalgebras in von Neumann algebras. It had been anticipated by

A. Kumjian in the early eighties. I shall survey these results and will present some special classes of Cartan pairs, among them those arising from orbifolds.

Speaker: Sergei Silvestrov (Lund University).
Title: Dynamical systems, actions and representations of generalized crossed product algebras – a fruitful interplay.
Abstract: In this talk generalizations of crossed product operator algebras associated to actions of non-invertible dynamical systems and semigroups will be considered from the point of view of interplay between properties of the dynamics and properties of representations, structure and classification of the corresponding operator algebras. Applications of these operator algebras and their representations to quantization and to analysis of fractals and wavelets will be presented.

Speaker: Christian Svensson (Leiden University/Lund University).
Title: Ideal intersection properties of commutative subalgebras of C^*-crossed products.
Abstract: In this talk I will display some highlights of results obtained in joint work with Jun Tomiyama.
I will briefly recall how one can associate a C^*-algebra, $C^*(\Sigma)$, with a topological dynamical system $\Sigma = (X, \sigma)$, where X is compact Hausdorff and $\sigma : X \to X$ a homeomorphism. $C^*(\Sigma)$ contains a copy of $C(X)$ as a commutative C^*-subalgebra. A well-known theorem says that $C(X)$ has non-zero intersection with every non-zero closed ideal of $C^*(\Sigma)$ precisely when $C(X) = C(X)'$, where the latter denotes the commutant of $C(X)$. This is also equivalent to a topological condition on Σ. One can show that $C(X)'$ is commutative, and hence a maximal commutative C^*-subalgebra of $C^*(\Sigma)$. I will discuss ideal intersection properties of $C(X)'$ for general Σ, and of so-called intermediate C^*-subalgebras, i.e., C^*-subalgebras B such that $C(X) \subseteq B \subseteq C(X)'$. It turns out that some qualitative properties of $C^*(\Sigma)$ hold true regardless of the system Σ. To illuminate the abstract theory a bit, I will spend some time focusing on dynamical systems Σ for which $C^*(\Sigma)$ can be realized as a matrix algebra with entries in $C(\mathbb{T})$.

Speaker: Thomas Timmermann (University of Münster).
Title: C^*-pseudo-multiplicative unitaries and compact reduced Hopf C^*-bimodules.
Abstract: Motivated by the study of subfactors, Enock, Lesieur and Vallin developed a theory of measurable quantum groupoids. The questions arise whether each measurable quantum groupoid corresponds to a locally compact quantum groupoid and how one can describe the latter in the language

of C^*-algebras. For quantum groups, such a correspondence is well-known and mediated by the associated multiplicative unitaries. In my talk I propose a "locally compact" analogue of the "measurable" pseudo-multiplicative unitaries of Enock and Vallin and adapt some fundamental constructions of Baaj and Skandalis to these objects, focusing on the compact case.

Speaker: Ivan Todorov (Queen's University, Belfast).
Title: Operator multipliers.
Abstract: A non-commutative version of the notion of Schur multipliers, called operator multipliers, was introduced recently by Kissin and Shulman. In this talk, a characterization of operator multipliers which parallels the classical description by Grothendieck and its generalization by Peller and Spronk, will be given. The compactness properties of operator multipliers will be discussed and a characterization of the completely compact operator multipliers will be provided. A multidimensional version of operator multipliers will be presented.
The talk will be based on joint work with K. Juschenko, R. Levene and L. Turowska.

Speaker: Yasuo Watatani (Kyushu University, Fukuoka).
Title: Complex dynamical systems and associated C^*-algebras.
Abstract: We give an overview of relations between complex dynamical systems and operator algebras. Iteration of a rational function R gives a complex dynamical system on the Riemann sphere $\hat{\mathbb{C}}$. A rational function R of degree at least two is not a homeomorphism, but R is a branched covering. Hence we replace the crossed product construction by the Cuntz–Pimsner construction to obtain C^*-algebras. Since the Riemann sphere $\hat{\mathbb{C}}$ is decomposed into the union of the Julia set J_R and the Fatou set F_R, we associate three C^*-algebras $O_R(\hat{\mathbb{C}})$, $O_R(J_R)$ and $O_R(F_R)$ by considering R as dynamical systems on $\hat{\mathbb{C}}$, J_R and F_R, respectively. We show that many properties of R as a complex dynamical system are related to the structure of the associated C^*-algebras and their K-groups. For example, the fractal property of the Julia set implies that the associated C^*-algebra $O_R(J_R)$ is simple and purely infinite. The branched points correspond to certain KMS states. We can count the number of points in the backward orbit of a branched point in terms of the C^*-algebra.
We call the solution of an algebraic equation $p(z, w) = 0$ for a polynomial $p(z, w)$ in two variables an algebraic correspondence. We also associate C^*-algebras with algebraic correspondences and study their relations.
This talk is based on joint work with M. Izumi and T. Kajiwara.

Speaker: Marten Wortel (Leiden University).
Title: Crossed products associated with Banach algebra dynamical systems.
Abstract: Let (G, Ω) be a locally compact transformation group, with invariant measure μ. With this we can naturally associate a (strongly continuous) unitary representation of G on $L^2(\Omega, \mu)$. A very useful tool in studying this and general unitary representations is the C^*-crossed product $A \rtimes_\alpha G$ associated with a C^*-dynamical system (A, G, α). If we take $A = \mathbb{C}$, then we obtain the group C*-algebra $C^*(G) = \mathbb{C} \rtimes_{id} G$, the representations of which are in bijection with the unitary representations of G. Through the C^*-crossed product construction, we now understand unitary representations of groups reasonably well at an abstract level.
Instead of representing G on $L^2(\Omega, \mu)$, we can also represent it on $L^p(\Omega, \mu)$ for general $1 \leq p < \infty$. We would like to improve our understanding of such representations, and more generally of strongly continuous representations of groups on (suitable) Banach spaces. In this setting it makes no sense to look at C^*-algebras, but we still would like to have a crossed product with nice properties, as in the C^*-case. Therefore we want to create a Banach algebra crossed product from a Banach algebra dynamical system (A, G, α). In this talk we will indicate how to construct such a crossed product using the construction of the C^*-crossed product as a guideline.
This is joint work in progress with Sjoerd Dirksen and Marcel de Jeu.

Speaker: John D. Maitland Wright (University of Aberdeen).
Title: On classifying monotone complete algebras of operators.
Abstract: We give a classification of "small" monotone complete C^*-algebras by order properties. We construct a corresponding semigroup. This classification filters out von Neumann algebras; they are mapped to the zero of the classifying semigroup. We show that there are 2^c distinct equivalence classes (where c is the cardinality of the continuum). This remains true when the classification is restricted to special classes of monotone complete C^*-algebras e.g. factors, injective factors, injective operator systems and commutative algebras which are subalgebras of ℓ^∞.
This is joint work with K. Saitô.