CCSU
DEPARTMENT OF MATHEMATICAL SCIENCES
Monday, February 12, 2007
11:00-12:00
Maria Sanford, Room 117

Compact-open-like topologies on C(X)

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SpFi is the category of spaces with filters: an object is a pair $(\mathbf{X}, \mathcal{F})$, where $\mathbf{X}$ is a compact Hausdorff space and $\mathcal{F}$ is a filter of dense open subsets of $\mathbf{X}$. A morphism $f : (\mathbf{Y}, \mathcal{F}') \longrightarrow (\mathbf{X}, \mathcal{F})$ is a continuous map $f : \mathbf{Y} \longrightarrow \mathbf{X}$ for which $f^{-1}(F) \in \mathcal{F}'$ whenever $F \in \mathcal{F}$. For every object $(\mathbf{X}, \mathcal{F}) \in \mathbf{SpFi}$ is defined a family $\{\tau_s | S \in \mathcal{F}_\delta\}$ of "compact in S - open" topologies $C(X)$, where $\mathcal{F}_\delta \equiv \{\cap F_n | F_1, F_2, F_3 \ldots \in \mathcal{F}\}$. Every element τ_S of that family has its closure operator cl_S and its convergence structure λ_S and these yield same information. On $C(X)$ we form $\tau^{\mathcal{F}} = \bigwedge\{\tau_S | S \in \mathcal{F}_\delta\}$, $cl^F = \bigvee\{cl_s | S \in \mathcal{F}_\delta\}$, and $\lambda^{\mathcal{F}} = \bigvee\{\lambda_S | S \in \mathcal{F}_\delta\}$.It now is unclear what are the properties of the structures $C(X)$ with $\tau^{\mathcal{F}}$, $cl^{\mathcal{F}}$, $\lambda^{\mathcal{F}}$ and what are the relations between these structures? In this talk we will give some partial answers to these questions.