The topological canonical van der Waerden conjecture

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There are many theorems in partition Ramsey theory that are equivalent to statements in topological dynamics and many statements in density Ramsey theory that are equivalent to statements in measurable dynamics. For example, it is well known that van der Waerden's theorem on arithmetic progressions is equivalent to a multiple recurrence theorem for open sets in minimal dynamical systems, and it is well known that Szemerédi's theorem is equivalent to Furstenberg's multiple recurrence theorem for measure preserving systems. In this poster we will discuss 2 conjectures for topological dynamical systems that each generalize the topological van der Waerden theorem. Either of these conjectures are strong enough to imply the canonical van der Waerden theorem, and one of these conjectures is strong enough to imply a generalization of Szeremédi's theorem. We will also discuss some implications in measurable dynamics and infinite ergodic theory.