Small exotic 4-manifolds

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Abstract. In this talk we present new examples of symplectic 4-manifolds with same integral cohomology as $S^2 \times S^2$. We also discuss the generalization of these examples to $(2n-1)(S^2 \times S^2)$ for $n > 1$. As an application of these symplectic building blocks we construct

1) An exotic smooth (symplectic) structure on $CP^2\#3(-CP^2)$, $3CP^2\#5(-CP^2)$, and $3CP^2\#7(-CP^2)$.

2) An exotic symplectic structure on $CP^2\#5(-CP^2)$.

3) An infinite family of distinct smooth 4-manifolds homeomorphic but not diffemorphic to $CP^2\#3(-CP^2)$, $3CP^2\#5(-CP^2)$ and $3CP^2\#7(-CP^2)$.

Part of this is joint work with I. Baykur and D. Park.