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COMPACTIFICATIONS OF C^2

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1. **Introduction.** By a *compactification* of C^2 we mean a nonsingular compact complex manifold M of complex dimension 2 which contains a nonempty nowhere dense closed analytic subset A such that $M - A$ is biholomorphic to C^2. It is not hard to verify that A is a compact connected one-dimensional analytic set, hence a finite union of irreducible curves. By blowing up certain points of A we may assume that A has the following properties.

(1) $A = \bigcup_{i=1}^{k} \Gamma_i$, where Γ_i is a nonsingular connected algebraic curve.

(2) Γ_i intersects Γ_j normally (if at all).

(3) $\Gamma_i \cap \Gamma_j \cap \Gamma_k = \emptyset$ for any three distinct indices.

(4) If the self-intersection $(\Gamma_i)^2 = -1$, then Γ_i meets at least three other curves Γ_j.

We call such a compactification a *minimal normal compactification* of C^2. The purpose of this note is to announce a list of all minimal normal compactifications of C^2. The proofs will appear elsewhere.

2. **Sketch of method.** The construction and proofs rely heavily on [3] and [4]. It is not hard to prove (see [5]) that each $\Gamma_i \cong P^1(C)$. A theorem of van de Ven [4] says that M is necessarily algebraic. A result of Ramanujam [3] says that the graph of A is linear. One then uses a surgical technique to find what possible selfintersection numbers the Γ_i can have. One step in the proof uses a theorem of Mumford [2] to compute the fundamental group of the boundary of a tubular neighborhood of A. One can then produce a list of possible graphs. One can prove that the compactifications corresponding to these graphs actually occur and are uniquely determined by the graphs. This has as a corollary the fact that all compactifications of C^2 are rational, a result conjectured by van de Ven and recently proved by Kodaira [1] by different techniques.

3. **The list of graphs.** The notation is as follows. Each line represents a point of intersection and each circle ("vertex") represents a nonsingular rational curve ($P^1(C)$). The number adjacent to each circle is the self-

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