

1116-37-695

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530 Church St, 2076 East Hall, Ann Arbor, MI 48109. *Complex dynamics of birational surface  
maps defined over number fields.*

For a birational self-map with non-trivial first dynamical degree on a complex surface, Bedford and Diller defined an energy condition which when satisfied guarantees nice dynamical properties for the map (with regard, in particular, to a naturally defined invariant measure). However, Buff showed that the energy condition can fail and that in fact maps without the nice dynamical properties do exist. We show that the energy condition is always satisfied when the birational self-map is defined over a number field. Our proof relies in part on a construction of a natural dynamical height function for the map, which expands upon work by Silverman and Kawaguchi. (Received September 10, 2015)