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Fabrizio Donzelli* (fabrizio@math.sunysb.edu), Institute of Mathematical Sciences, Stony Brook University, Math Tower, Stony Brook, NY 11794. *Algebraic density property of Danilov-Gizatullin surfaces*. Preliminary report.

A Danilov-Gizatullin surface is an affine surface V which is the complement of an ample section S of a Hirzebruch surface. The remarkable theorem of Danilov and Gizatullin states that the isomorphism class of V depends only on V . We show that the Lie algebra generated by the complete algebraic vector fields on V coincides with the set of all algebraic vector fields (i.e.: V has the ALGEBRAIC DENSITY PROPERTY). The proof makes use of the Danilov-Gizatullin theorem to present V as an algebraic quotient of an affine threefold F by the action of an affine torus T . This presentation of V allows us to calculate a set of generators of the ring of the T -invariant regular functions of F (that generate the ring of regular functions on V), and to find some useful complete T -invariant vector fields on F (that descends to complete vector fields on V). With those functions and vector fields we perform some simple computations involving Lie brackets, in order to apply some technical principles that imply the desired result. (Received September 22, 2010)