

Contents

Agradecimientos	iv
1 Introduction	1
1.1 Density Classification	1
1.2 Maximal Independent Set	2
2 A Large Diffusion and Small Amplification Dynamics for Density Classification on Graphs	4
2.1 Introduction	4
2.2 Preliminaries	6
2.3 A Local Dynamics for Density Classification	7
2.4 Experimental Results	12
2.4.1 Experimental study when $\sigma = 0$	13
2.4.2 Experimental study when $\sigma = 0.01$ and $\rho_c = 1/2$	14
2.4.3 Convergence time and effectiveness versus amplification	15
3 Maximal Independent Set Computation Driven by Finite-State Dynamics	18
3.1 Introduction	18
3.1.1 Our Contribution	21
3.1.2 Structure of the article	21
3.2 Preliminaries	21
3.3 Experimental Results	22
3.4 A bound on the convergence time of the MIS-Dynamics on arbitrary graphs .	26

3.4.1	The 2-MIS-Dynamics on arbitrary graphs	28
3.5	The 2-MIS-Dynamics on graphs of bounded degeneracy	30
4	Conclusions and Future Work	32
4.1	Density Classification	32
4.2	Maximal Independent Set	32
	Bibliografía	36