

# Table of Contents

<b>1. Introduction</b>	<b>1</b>
1.1. Spintronics . . . . .	1
1.2. Spin interactions . . . . .	2
1.3. Electronic Transport . . . . .	4
1.4. STT vs. SOT . . . . .	8
<b>2. Effective dynamics for localized spins</b>	<b>11</b>
2.1. Introduction . . . . .	11
2.2. The Array of localized spin: Model . . . . .	12
2.3. Spin Monomer . . . . .	15
2.3.1. Equation of motion . . . . .	17
2.3.2. Low energy approximation . . . . .	19
2.3.3. Effective temperature and damping: Numerical analysis . . . . .	22
2.4. Spin dimer . . . . .	22
2.4.1. Equation of motion . . . . .	24
2.4.2. One spin fixed . . . . .	27
2.4.3. Analysis of effective interactions . . . . .	28
2.4.4. Effective interactions, damping, and correlation: Numerical analysis .	30
<b>3. Fokker-Planck Analysis</b>	<b>42</b>
3.1. Introduction . . . . .	42
3.2. From Langevin to Fokker-Planck equation . . . . .	43
3.3. Monomer . . . . .	45
3.4. Dimer . . . . .	48
<b>4. Conclusion</b>	<b>56</b>
<b>Bibliography</b>	<b>58</b>
<b>A. Electronic Green's functions calculations</b>	<b>61</b>
<b>B. Dimer's canonical Langevin equation: Calculations</b>	<b>66</b>