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Stress relaxation of polymer networks containing low concentrations of dangling chains and star shaped polymers DANIEL A. VEGA, Department of Physics- Universidad Nacional del Sur- Bahía Blanca - Argentina, LEOPOLDO R. GÓMEZ, MARCELO A. VILLAR, ENRIQUE M. VALLÉS, Plapiqui- Bahía Blanca - Argentina — We analyze the influence of low concentrations of star and dangling polymer chains on the stress relaxation process of model polymer networks. Model PDMS networks with well defined structure were obtained by the hydrosilylation reaction, based on the addition of hydrogen silanes from a trifunctional cross- linker to end vinyl groups of $\alpha - \omega$ polydimethylsiloxane chains. Rheological characterization was carried out in a rotational rheometer by dynamic and stress relaxation tests. Viscoelastic properties of the networks depend strongly on the molecular weight of the stars or pendant chains. It was found that a modified Pearson-Helfand model provides a very good fit to the behavior of these networks. This model incorporates the effect of higher Rouse modes on the arm retraction [Milner and McLeish, *Macromolecules*, 1997] and the potential for arm retraction originally proposed by Doi and Kuzuu.

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