

*Eighth Workshop Dynamical Systems Applied  
to Biology and Natural Sciences DSABNS 2017  
Évora, Portugal, January 31st - February 3rd, 2017*

# THE IMPORTANCE OF SYNAPTIC TRANSMISSION IN HIV INFECTION

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We derive a fractional order model for the dynamics of HIV that includes synaptic and virus-to-cell transmission modes. Moreover, drug resistance is also considered. We prove the local and global stability of the disease-free equilibrium. We study the role of the synaptic transmission on the dynamics of the model, and on the value of the reproduction number,  $R_0$ , for several values of the order of the fractional derivative,  $\alpha$ . Additionally, the patients' quality of life is improved when increasing drug efficacy.