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OBJECTIVES

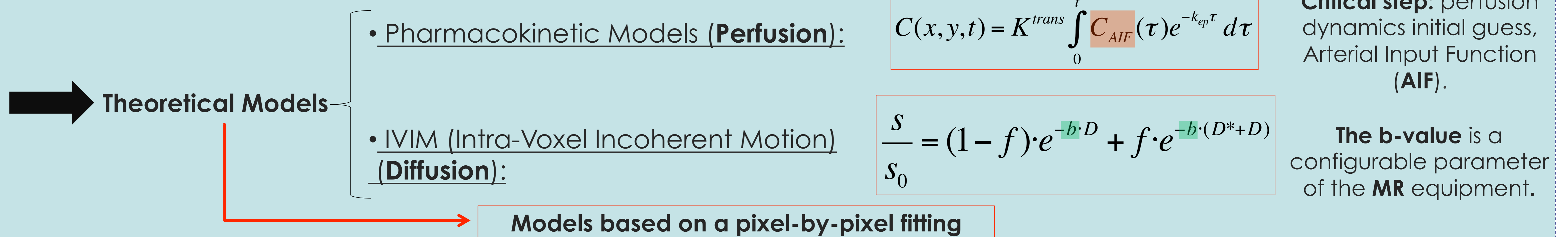
General Objective: to explore the capability of **MCR methods** to model the different **behaviors** associated to the diffusion and perfusion processes in MRI (Magnetic Resonance Imaging) helping specialists to detect and characterize **early tumors** in the prostate.

Specific Objectives: to check the adequacy of the **theoretical models** commonly applied in clinical practice.

to incorporate the results of both processes (**diffusion and perfusion**) in an **unique statistical multivariate model**, helping the doctors in clinical interpretation.

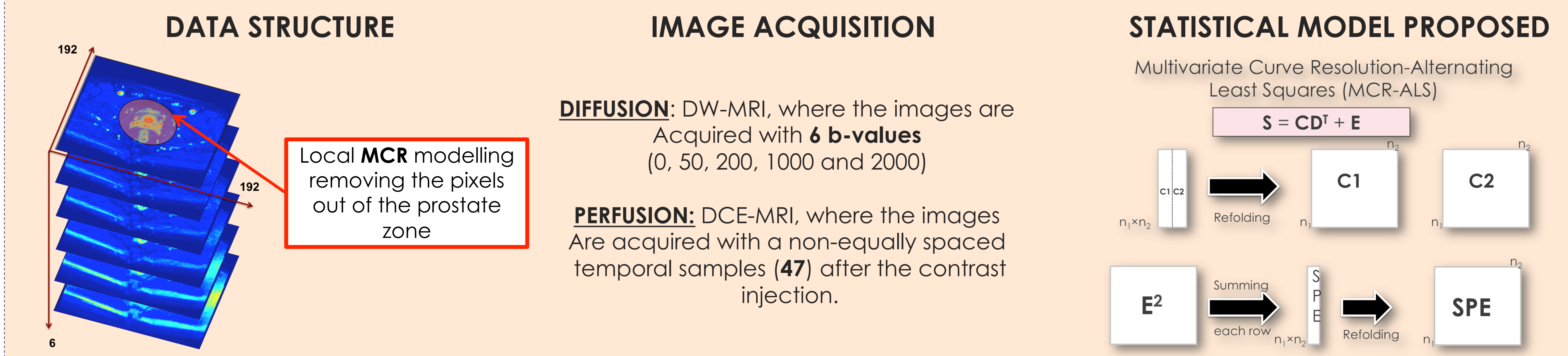
PERFUSION AND DIFFUSION STUDIES

The combination of neovascularization and increase in cellular density frequently determines the presence of an early tumor at first steps in oncogenesis. This combination can be analyzed by studying two different processes: **Perfusion and Diffusion**, which can be evaluated by Magnetic Resonance Imaging (MRI).

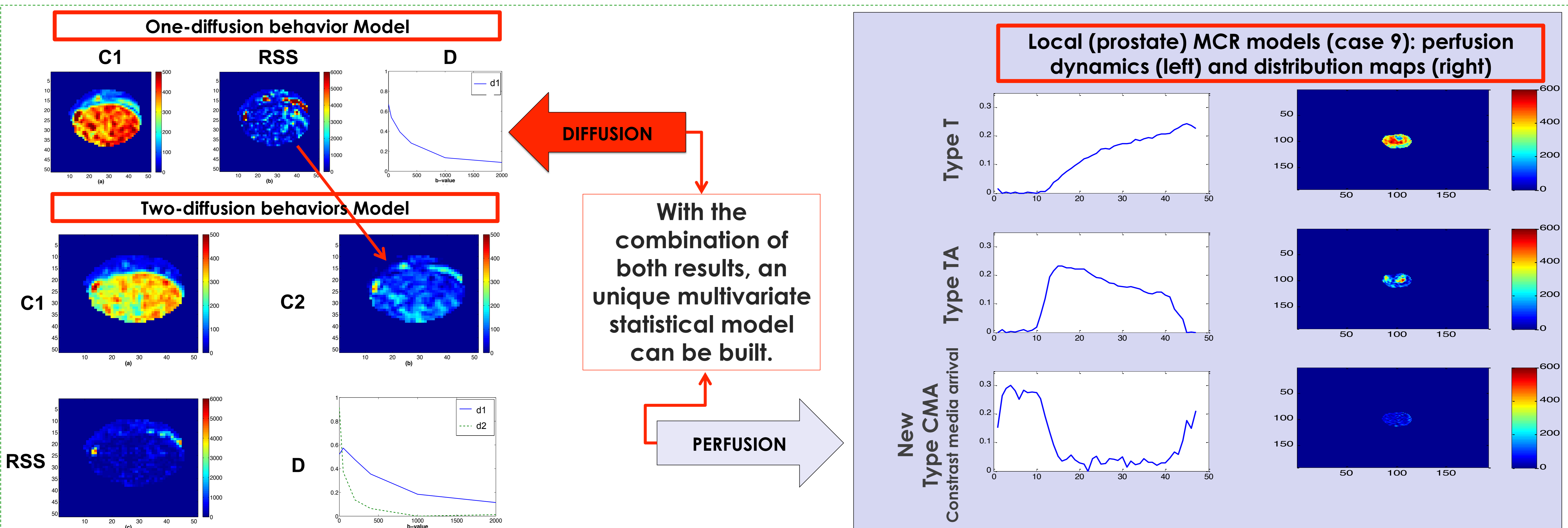


MATERIALS AND DATA MODELING

The database consists of MRI images taken along **12 slices** covering the whole prostate from **10 patients**.



RESULTS (Multivariate Curve Resolution MODELLING)



POTENTIAL PROFITS

- Multivariate statistical models can help in **cancer diagnosis** providing behaviors with **physiological meaningful**.
- The **local distribution maps** permit to localize the prostate zone with **higher probability** of a carcinoma presence (related to the perfusion and diffusion behaviors).