Giorgio Laguzzi's research

My interests mainly concern the study of several regularity properties of the reals (and forcing notions associated with them): from the most common and oldest ones, like Lebesgue measurability (random forcing), Baire property (Cohen forcing), perfect set property and Ramsey property (Mathias forcing), to the most recent ones, like Miller measurabilty (Miller forcing), Laver measurability (Laver forcing) and Dominating measurability (Dominating forcing) (Sacks measurability in this sense cannot be actually consider a new property, since it coincides with the old Bernstein partition property). More precisely, I am interested in statements of the form

$$\text{“ } \textit{every set of reals is regular*} \text{ ”}, \tag{1}$$

where *regular** represents any regularity property among those mentioned above. The basic model for all these properties is the well-know Solovay model; however such a model is somehow too nice, since it satisfies all statements like (1), and furthermore an inaccessible cardinal is needed to get it. Hence, studies in this field may be divided in two main branches:

(a) the first one concerns the construction of models to separate statements of this type for different properties (i.e. models in which statement (1) holds for a certain regularity property but not for another one);

(b) the second one concerns to understand whether the existence of an inaccessible is really necessary to get a certain regularity property.

About (a), many examples of such models were introduced by Shelah, in particular to separate Lebesgue measurability, Baire property and perfect set property (one of these models is also due to a joint work of Di Prisco and Todorcevic). About (b), almost all cases has been solved during these years, except for two: Ramsey property and Laver measurability. It should be noticed that these two properties are strictly connected, since the Ramsey property may be seen as the uniform version of Laver measurability. Hence, many suggestive questions are still open in this area. In particular, in this period I am focusing the attention on this problem about the Laver measurability and I am rather confident that, as for the Baire property, one can construct the desired model without inaccessible cardinals.