*Which degree can the sum of two algebraic numbers have?*

Abstract. Suppose $\alpha$ and $\beta$ are two algebraic numbers of degrees $a$ and $b$, respectively. In the talk we address the following problem. Which values can the degree of their sum $\alpha+\beta$ (and the degree of their product $\alpha \beta$) take and which cannot?  Another related problem is the one about number fields. Let $K$ and $L$ be the extensions of the field of rational numbers $Q$ of degrees $a$ and $b$, respectively. Find the set of values taken by the degree of their composite $[KL : Q]$. We will show the relations between these three problems and the classification of possible $c$'s when $a \leq b \leq c$. The talk is based on two papers written jointly with P. Drungilas, C.J. Smyth and F. Luca and published in Publicacions Matematiques and Mathematische Nachrichten.