The stars with masses higher than several solar masses have a chance to explode as supernovae. Thanks to their spectacular death, the Universe is enriched with heavy elements, from which the rocky planets like Earth and the life on it are built. In other words, the supernovae are responsible for the chemical evolution of the whole Universe. Thermonuclear burning in stellar cores converts hydrogen into helium and, near the end of stellar life, into heavier elements. It seems that stellar interiors are one of the most inaccessible places in the Universe. The star, however, is a self-gravitating gaseous ball and like an elastic rubber ball, can experience vibrations. The star behaves similarly to the resonance box where only very specific sound waves can be enhanced. Depending on physical conditions in the stellar interior, a unique 'set of sounds' are excited. Eventually, the star begins to pulsate which can be observed at its surface as brightness variations. Thanks to this phenomenon, we can indirectly 'look into' the stellar interior. The field of astrophysics which deals tries to reveal information on stellar interiors is called *asteroseismology*.

The vast majority of massive stars are not alone, but have a companion, forming together a binary system, in which the components revolve around its center of the mass. If the orbit of such a binary is strongly elliptic, once per orbit the stars will be very close to each. At these epochs, the tidal forces cause their distortion. This distortion results in a short and rapid change in brightness of the entire system, which is called the *heartbeat*, due to the characteristic shape of the brightness change, reminiscent of the electrocardiogram record. Moreover, because the star-building gas is characterized by inertia, the tidally deformed star begins to oscillate, wanting to return to equilibrium stage. Such tidally excited oscillations are visible even when the components recede from each other.

At present, about 170 heartbeat stars are known, some of them exhibit tidally induced oscillations. Thanks to the photometric surveys, like e.g. OGLE project, and using the observations collected by the TESS satellite, we would like to discover new objects of this unique type. Next, they will be subjected to detailed studies. We also propose the implementation of the appropriate computer simulations using the latest evolutionary codes to answer the question, how frequent is the heartbeat effect in binary systems and how often is it occurring alongside with tidally excited oscillations? The effects of the work we propose will help not only to better understand the internal structure of the most massive stars, but also to contribute to understanding the evolution of the orbits of these binary systems in which the tides play a significant role.