Candidate Architectures for the Darwin Missions

Philippe Gondoin (Philippe.Gondoin at esa.int), European Space Agency

Darwin is one of the most challenging space projects ever considered by the European Space Agency (ESA). Its principal objectives are to detect Earth-like planets around nearby stars and to characterize their atmospheres. Darwin is conceived as a space "nulling interferometer" which makes use of on-axis destructive interferences to extinguish the stellar light while keeping the off-axis signal of the orbiting planet. Within the frame of the Darwin program, the European Space Agency (ESA) has initiated two parallel industrial studies that are currently assessing possible implementations in space of two candidate nulling interferometer configurations, namely the Three Telescope Nuller and the X-array. The presentation will summarize the output of these space engineering system studies and provide some elements of comparison between the proposed space mission design concepts.