This topic is related to two papers. One has been already published (On the meaning of Lorentz covariance, *Foundations of Physics Letters* **17** (2004) pp. 479 - 496), the other (Does special relativity theory tell us anything new about space and time?) is still waiting for the decision of the referees. (Both are available from my web site. [55, 48]. Se also [I, 51, 50].)

As someone who was involved for many years in teaching both special and general relativity, I am completely aware of the provocative features of these two articles. That is why this discussion site has been opened.

In my "On the meaning ..." paper I argue that relativity principle, in general, does not hold in special relativity theory. In classical mechanics, Galilean covariance and the principle of relativity are completely equivalent and hold for *all possible dynamical processes*. In contrast, in relativistic physics the situation is much more complex. Lorentz covariance and the principle of relativity are not completely equivalent. The reason is that the principle of relativity actually only holds for the equilibrium quantities that characterise the equilibrium state of dissipative systems. In the light of this fact, I argued, Lorentz covariance should not be regarded as a fundamental symmetry of the laws of physics.

In the second paper it is shown that, in comparison with the pre-relativistic Galileo-invariant conceptions, special relativity *tells us nothing new about the geometry of space-time.* It simply calls something else "space-time", and this something else has different properties. All statements of special relativity about those features of reality that correspond to the original meaning of the terms "space" and "time" are identical with the corresponding traditional pre-relativistic statements. It is also argued that special relativity and Lorentz theory are completely *identical* in both senses, as theories about space-time and as theories about the behaviour of moving physical objects.