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【标题】： 伽利略及爱因斯坦相对性原理 与源观对相对性原理

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【摘要】： 伽利略从密闭船舱的经验出发，揭示了一个普遍性规律，即无论船静止或作匀速直线运动，物理规律相同，无法通过密闭船舱内的力学实验分辨出船的绝对速度！狭义相对性原理认为：在两个惯性系中，电磁学规律的形式相同；广义相对性原理认为：在任意两个参考系中，引力规律的形式相同。 爱因斯坦认为，他的相对性原理，是对伽利略相对性原理的推广。本文认为：伽利略相对性原理的核心在于物理规律相同，不可分辨；而爱因斯坦相对性原理的核心在于物理规律的形式相同，与伽利略相对性原理有重大差异：物理规律相同，不可分辨，其形式必然相同;但形式相同，物理量不一定相同，可能分辨。本文指出，源观相对性原理才是最普遍的相对性原理：物理规律取决于相对源观对之间的相对关系；对于同样物理源，相对关系不同的观测者，物理规律的形式相同，但测量结果不同，可以分辨。

【关键词】： 惯性系，伽利略相对性原理，狭义相对性原理，广义相对性原理，源观对相对性原理

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【TITILE】： Galileo's and Einstein's relativity principles and relativity principle of the pair between source and observer

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【ABSTRACT】： From the experience of airtight cabin, Galileo revealed a common rule, i.e. whether ship is still or is uniformly moving along a straight line, the physical law is the same, which is observed by observer inside the cabin, the absolute state of motion of the ship can not be distinguished by any mechanics experiment. According to the special and general relativity principles, it is believed that the form of physical laws should be the same in inertial or arbitrary frame systems respectively, Einstein believed that his principle of relativity is a promotion of Galileo relativity principle. This paper thinks that the core of Galileo relativity principle is that the physical law are the same and indiscernible in all inertial reference systems, but the core of Einstein's relativity principle is that the form of the physical laws are the same in different reference systems, there is a significant difference between Galileo's and Einstein's relativity principle. This paper points out that the relativity principle of the pair of source-observer may be the most common relativity principle: the physical law depends on the relative relation between the physical source and arbitrary observer. In general，different observers to the same physical source, the form of the physical laws is the same, but the measurement result could be different, so it is distinguishable.

【KEYWORDS】： inertial system, Galileo relativity principle, the principle of special relativity, relativity principle of general relativity, relativity principle of the pair between the physical source and observer

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