

The aim of this thesis was to review theoretically and experimentally so-called Mpemba effect, where the initially hot water freezes sooner than the initially cold one. Based upon already published theoretical and experimental works, a list of circumstances possibly supporting this phenomenon was created and discussed. Some situations were verified experimentally. These experiments were carried out partly in laboratory using small amounts of distilled water (less than 1 ml), partly in "kitchen conditions" using the tap water (about 200 ml) and a commercial home refrigerator. The time of freezing denoted by freezing of the entire body of water was measured using the inflection points of cooling curves. Unlikely to the Mpemba effect (and likely to the usual expectations), usually the sample of cold water freezes sooner than the hot one. The Mpemba effect occurred rarely, mostly when the cooler was covered by the layer of the snow and the hot vessel could melt through it to reach better thermal contact than the cold vessel. Other observed cases were mostly inconclusive.