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Oral Presentation 3.1

LASALLE’S INVARIANCE PRINCIPLE ON MEASURE CHAINS

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In the difference calculus, we are concerned with purely discrete cases. In the
differential calculus, we are concerned with purely continuous cases. The
separation and separate development of these two calculuses in conceptually
disunified, inelegant, and involves much additional effort. Drs. Bernd Aulbach and
Stefan Hilger developed a calculus on measure chains which includes the difference
and differential calculuses as special cases. Measure chains are a certain kind of
subset of the real line.

Lasalle’s Invariance Principle is a result on stability. It is an extension of Liapunov’s
theorem. Lasalle has established his Principle in both the continuous and the
discrete cases.

I will prove Lasalle’s Invariance Principle in the context of the measure chain
calculus. This demonstration will represent an extension of the Principle and will
show the conceptual power of the measure chain calculus.