# An averaging formula for Reidemeister traces

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Let $f\colon X \to X$ be a self-map on a connected compact polyhedron. Assume that $f$ admits a lifting with respect to an $n$-fold regular covering $q\colon \bar{X} \to X$. It is well-known that there is an averaging formula $L(f) = \frac{1}{n} \sum_{\bar{f} \in \mathrm{lift}(f,q)} L(\bar{f})$ for Lefschetz numbers (see [1]). Here, $\mathrm{lift}(f,q)$ stands for the set of all liftings of $f$ with respect to the covering $q\colon \bar{X} \to X$. Moreover, an averaging formula $N(f) = \frac{1}{n} \sum_{\bar{f} \in \mathrm{lift}(f,q)} N(\bar{f})$ for Nielsen numbers was obtained in [3] under some assumptions on the given self-map $f$ or the space $X$. In this talk, we shall show that there does exist an averaging formula for Reidemeister traces. The Reidemeister trace of a self-map is also a classical invariant containing the information of both the Lefschetz number and the Nielsen number. Such a result may illustrate the idea of [2] for all classical invariants in Nielsen fixed point theory.

## References

[1] B. Jiang, Lectures on the Nielsen Fixed Point Theory, Contemp. Math. 14, Amer. Math. Soc., Providence 1983.

[2] J. Jezierski, Nielsen number of a covering map. Fixed Point Theory Appl. 2006, Special Issue, Art. ID 37807, 11 pp.

[3] S. W. Kim, J. B. Lee, K. B. Lee, Averaging formula for Nielsen numbers. Nagoya Math. J. 178 (2005), 37 – 53.