Topologist sine curve and its many applications

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We shall present a variety of interesting applications of the classical example of a 1-dimensional connected non-Peano planar continuum, the Topologist sine curve:

$$T = \{(x,y) \in R^2 \mid y = sin(1/x),\ 0 < x \leq 1\} \cup (\{0\} \times [-1,1])$$

(and its derivatives, most notably the Warsaw circle) to diverse problems of geometric topology in dimensions 2 and 3. For example: an example showing that the classical van Kampen theorem fails without the openess condition, a counterexample to Molnar's theorem from 1950's, and a construction of a 2-dimensional noncontractible simply connected cell-like continua. We shall also present the solution of the Bestvina-Edwards problem: Does there exist a noncontractible cell-like compactum whose suspension is contractible? In conclusion we shall state some interesting open problems.