



# Ordering in bidirectional pedestrian flows and its influence on the fundamental diagram

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Experiments under laboratory conditions were carried out to study the ordering in bidirectional pedestrian streams and its influence on the fundamental diagram (density-speed-flow relation). The Voronoi method is used to resolve the fine structure of the resulting velocity-density relations and spatial dependence of the measurements. The data show that the specific flow concept is applicable also for bidirectional streams. For various forms of ordering in bidirectional streams, no large differences among density-flow relationships are found in the observed density range. The fundamental diagrams of bidirectional streams with different forms of ordering are compared with that of unidirectional streams. The result shows differences in the shape of the relation for  $\{\rho\} > 1.0 \text{ m}^{-2}$ . The maximum of the specific flow in unidirectional streams is significantly larger than that in all bidirectional streams examined.

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