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In: Zdeněk Frolík (ed.): Abstracta. 5th Winter School on Abstract Analysis. Czechoslovak Academy of Sciences, Praha, 1977. pp. 89.

Persistent URL: <http://dml.cz/dmlcz/701098>

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## FIFTH WINTER SCHOOL (1977)

## A NON-ZERO DIMENSIONAL ATOM IN THE LATTICE OF UNIFORMITIES

by

J. Reiterman and V. Röd1

A uniformity  $\mathcal{A}$  on a countable set  $X$  is exhibited such that  $\mathcal{A}$  is an atom in the lattice of uniformities on  $X$  and such that  $\mathcal{A}$  is non-zero dimensional. This solves a problem of [Pelant, Reiterman: Atoms in uniformities, Seminar Uniform Spaces, Prague 1975]. The example is based on a construction of a metric space  $(X, \rho)$  ( $X$  countable) with properties:

- (i)  $(X, \rho)$  is not uniformly discrete,
- (ii) There exists an ultrafilter  $\mathcal{U}$  on  $X$  which has a basis consisting of uniformly homeomorphic copies of  $(X, \rho)$
- (iii) The ultrafilter  $\mathcal{U}$  from (ii) is selective w.r.t. all covers  $\{P_i\}$  with  $\sup \text{diam } P_i < \infty$ .