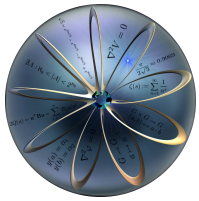

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## totally bounded uniform space

| | |
|---|---|
| Canonical name | TotallyBoundedUniformSpace |
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| Entry type | Definition |
| Classification | msc 54E35 |
| Defines | totally bounded |
| Defines | totally bounded uniformity |

A uniform space $X$ with uniformity $\mathcal{U}$ is called *totally bounded* if for every entourage $U \in \mathcal{U}$, there is a finite cover $C_1, \ldots, C_n$ of $X$, such that $C_i \times C_i \in U$ for every $i = 1, \ldots, n$. $\mathcal{U}$ is called a totally bounded uniformity.

**Remark**. A uniform space is compact (under the uniform topology) iff it is complete and totally bounded.

# References

[1] S. Willard, *General Topology*, Addison-Wesley, Publishing Company, 1970.