

### Statistical Cluster Points in Finite Dimensional Spaces

Serpil Pehlivan\*, Suleyman Demirel University.

Mamedov Musa, Suleyman Demirel University.

#### ABSTRACT

---

In this paper we study a set of statistical cluster points of sequences in  $m$ -dimensional spaces. This problem for real number sequences was studied by Fridy in [4]. Here we establish that some properties of the set of statistical cluster points of the real number sequences hold for the sequences in  $m$ -dimensional spaces. A notion of  $\Gamma$ -statistical convergence is given. The sequence  $x$  is  $\Gamma$ -statistically convergent to the set  $C$  if  $C$  is a minimal closed set such that for every  $\epsilon > 0$  the set  $\{k : \rho(C, x_k) \geq \epsilon\}$  has density zero. It is shown that every statistically bounded sequence is  $\Gamma$ -statistically convergent. Moreover if a sequence is  $\Gamma$ -statistically convergent then the limit set is a set of statistical cluster points.

#### References

1. J.S. Connor, *The statistical and strong  $p$ -Cesàro convergence of sequences*, Analysis, **8**(1988), 47-63.
  2. H. Fast, *Sur la convergence statistique*, Collog. Math. **2** (1951), 241-244.
  3. J.A. Fridy, *On statistical convergence*, Analysis, **5** (1985), 301-313.
  4. J.A. Fridy, *Statistical limit points*, Proc. Amer. Math. Soc., **118** (1993), 1187-1192.
  5. J.A. Fridy and C. Orhan, *Statistical limit superior and limit inferior*, Proc. Amer. Math. Soc., **125** (1997), 3625-3631.
  6. E. Kolk, *The statistical convergence in Banach spaces*, Acta Comm. Univ. Tartuensis, **928** (1991), 41-52.
  7. T. Salat, *On statistically convergent sequences of real numbers*, Math. Slovaca, **30** (1980), No. 2, 139-150.
- 

**Keywords:** *Natural density, statistically bounded sequence, statistical cluster point*

**Mathematics Subject Classification:** *Primary 40A05; Secondary 26A05, 11B05.*

**Contact Address:** serpil@sdu.edu.tr