Abstract.

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"Mean value operators on noncompact symmetric spaces".

In this talk, we deal with mean value operators on $\mathbb{R}^n$ and on noncompact symmetric spaces. We start with the following mean value operator on $\mathbb{R}^n$.

$$M^r f(x) := \frac{1}{\mathrm{Vol}(S^r(0))} \int_{S^r(x)} f(y) \, dS_y, \qquad f \in C^\infty(\mathbb{R}^n),$$

where r is a fixed positive number and $S^r(x) = \{ y \in \mathbb{R}^n \,|\, |y - x| = r \}$. We explain the surjectivity (and the injectivity) of M^r. It turns out that the surjectivity is a highly nontrivial problem if we consider M^r to be an operator on $C^\infty(\mathbb{R}^n)$. Next, we define analogous mean operators to M^r on noncompact symmetric spaces and state our results on the surjectivity of mean value operators. (For simplicity, we use Poincaré disk to explain our results.)