

MECHANICS OF SPORTS

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ABSTRACT

The MS discusses advances in Sports Mechanics. All sports are included. Some examples are Skiing, Swimming, Bicycling, Tennis, Badminton, Golf, Athletics, Formula 1 racing. Contributions that aim at advances in the understanding of flows past sports projectiles are encouraged. These include, but not limited to, flow past kites, boomerang, frisbee, baseball, ico-hockey puck. Case studies related to improvement in sports performance are encouraged as well. For example, drafting is becoming increasingly important in several sports, including running. On the solids side, studies aimed at the design of racquets, bats to enlarge the sweet spot in various sports are welcome. Contributions that utilizing existing data to estimate trajectory of various sports projectiles are invited.

REFERENCES

- [1] Mehta, Rabindra D. "Aerodynamics of sports balls." *Annual Review of Fluid Mechanics* Vol. 17.1, pp.151-189, (1985).
- ✚2☺ Shah, Kunjal, Ravi Shakya, and Sanjay Mittal. "Aerodynamic forces on projectiles used in various sports." *Physics of Fluids* 31.1 (2019).
- [3] Clanet, Christophe. "Sports ballistics." *Annual Review of Fluid Mechanics* 47.1, pp. 455-478, (2015)