

Physics Department Seminar

3pm January 31, 2020, Physical Sciences room 301

DR. LOUIS BUCHHOLTZ

CSU Chico

Return of the Vacuum Cannon



Ridiculously simple in design, the vacuum cannon performance has defied belief, wowed critics and delighted generations of students. It has also dumbfounded every attempt at accurate theoretical description. Now, after many years, we have new hope that this may be changing. We first review previous models of the compressible gas dynamics involved (including one published by Buchholtz & Ayars in 2004) and show why they are wrong. We then present a new analytic solution of an intermediate problem that may point the way toward a solution of the complete problem in the future. Lovely and subtle mathematics from the past, shocking physics, and intriguing possible future developments all make their appearance on the scene. The Vacuum Cannon is back with a vengeance.

