

3.2.03-00 Maxwellian velocity distribution



What you can learn about ...

- Kinetic theory of gases
- Temperature
- Gas
- Molecules
- Model kinetic energy
- Average velocity
- Velocity distribution

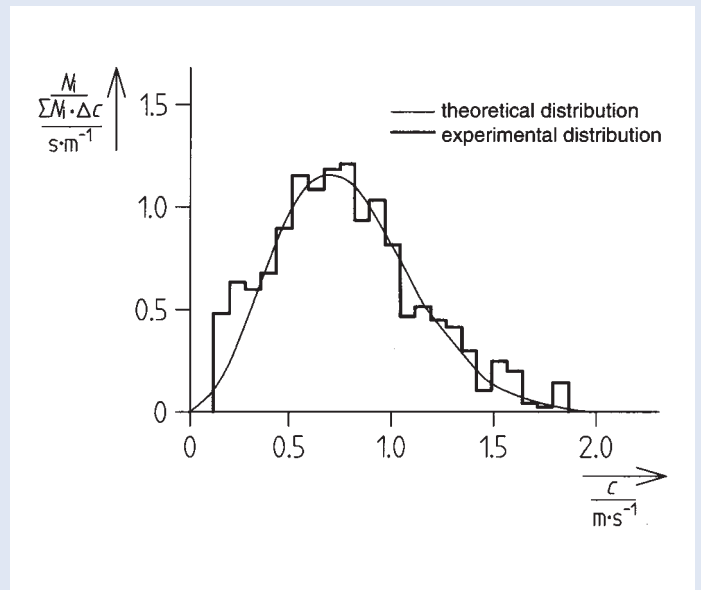
Principle:

By means of the model apparatus for kinetic theory of gases the motion of gas molecules is simulated and the velocity is determined by registration of the throw distance of the glass balls. This velocity distribution is compared to the theoretical MAXWELL-BOLTZMANN equation.

What you need:

Kinetic gas theory apparatus	09060.00	1
Receiver with recording chamber	09061.00	1
Power supply 0-12 V DC/ 6 V, 12 V AC	13505.93	1
Digital stroboscopes	21809.93	1
Stopwatch, digital, 1/100 s	03071.01	1
Tripod base -PASS-	02002.55	2
Connecting cable, 4 mm plug, 32 A, red, $l = 75$ cm	07362.01	1
Connecting cable, 4 mm plug, 32 A, blue, $l = 75$ cm	07362.04	1
Test tube, AR-glass, $d = 16$ mm	37656.10	1
Test tube rack for 12 tubes, wood	37686.10	1

**Complete Equipment Set, Manual on CD-ROM included
Maxwellian velocity distribution P2320300**



Experimental and theoretical velocity distribution in the model experiment.

Tasks:

1. Measure the velocity distribution of the "model gas".
2. Compare the result to theoretical behaviour as described by the MAXWELL-BOLTZMANN distribution.
3. Discuss the results.