py-dimensional-analysis

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This Python package addresses physical dimensional analysis. In particular, `py-dimensional-analysis` calculates from a given system of (dimensional) variables those products that yield a desired target dimension.

The following example illustrates how the variables mass, force, time and pressure must relate to each other in order to produce the dimension length*time.

```
import danalysis as da
import danalysis.standard_units as si

r = da.solve(
    {'a': si.M, 'b': si.F, 'c': si.T, 'd': si.pressure},
    si.L*si.T
)
print(r)
# Found 2 variable products generating dimension L*T:
#     1: [a*c**-1*d**-1] = L*T
#     2: [b**0.5*c*d**-0.5] = L*T
```

This library is based on [Szi07], and also incorporates ideas and examples from [San19, Son01].

1.1 References

[San19] Juan G. Santiago. *A First Course in Dimensional Analysis: Simplifying Complex Phenomena Using Physical Insight.* MIT Press, 2019.

[Son01] Ain A Sonin. Dimensional analysis. Technical report, Technical report, Massachusetts Institute of Technology, 2001.

[Szi07] Thomas Szirtes. *Applied dimensional analysis and modeling.* Butterworth-Heinemann, 2007.