The Paraboloidal Reflector Antenna in Radio Astronomy and Communication

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Corrections to the first printing

Unfortunately some small errors and misprints have not been detected in the proofreading of the book. These are listed here for the convenience of the reader. If the reader finds additional errors, the author will be grateful for being informed. Some small, trivial misprints, as a double comma or a dropped spacing, are not mentioned here.

p. iii (title page) and p. iv - add as second affiliation: **Max-Planck-Institut für Radioastronomie**.

p. viii - third paragraph, third last sentence should be: The routines are being made available on the CD-ROM, placed in the back of the book.

p. 45, Eq.(3.34) - place a 2 in front of the last integral. This will lead to the correct form of Eq.(3.35).

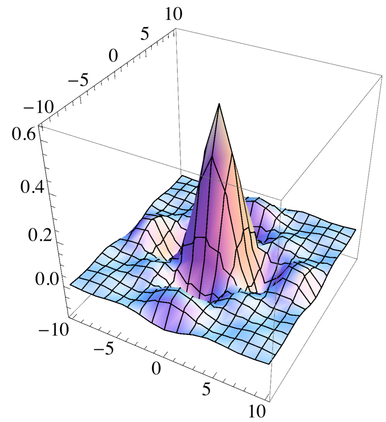
p. 51 - Fig. 3.9 - this is not the correct three-dimensional picture of the Fourier Transformation of a square aperture distribution. Rather, as the *Mathematica* routine on page 54 indicates, it is the "azimuthal revolution" of the one-dimensional block-function. The FT of a square, uniformly illuminated aperture can be obtained from the following *Mathematica* routine (to replace Mat.3.6), showing the well-known "cross-shaped" sidelobes of the "Sinc" function.

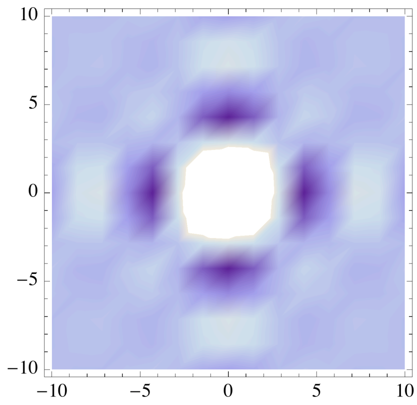
```
Mat .3. 6 - "FourierTransform example";
x =.; y =.; u =.; v =.;
ftq = FourierTransform[
  UnitStep[(1 - x) (1 + x)] UnitStep[(1 - y) (1 + y)], {x, y}, {u, v}]
pd = Plot3D[ftq, {u, -10, 10}, {v, -10, 10},
   PlotRange -> All, BoxRatios -> {1, 1, 1}];
pden = DensityPlot[ftq, {u, -10, 10}, {v, -10, 10}];
GraphicsRow[{pd, pden}]
```

$$\frac{2\,\mathrm{Sin}[u]\,\mathrm{Sin}[v]}{\pi\,u\,v}$$

It is suggested to replace the text just above Fig. 3.9 and the figure itself by the following:

As an example we present below the Fourier Transformation of a square aperture with constant amplitude and phase distribution (Fig.3.9); the Mathematica expression is given in [Mat.3.6]. The result is the product of the Sinc(u) and Sinc(v) functions,





p. 61 - first, unnumbered equation: add **r** in front of dr.
p. 73 - 4 lines from bottom should read: ".... of f/d=0.4, the **last** quotient **term** in Eq.(4.25)..."
p. 84 - the subscript of the W-term in the unnumbered equations should be a small l (ell) throughout (4 times). Also replace ϕ by ψ in the sin term of the first equation below Eq.(4.36b).
p. 86 - remove "dB" from the axis label of Fig. 4.19.
p. 117 - third paragraph, line 7: replace text in brackets by "(see the text in Sec. 5.8)".
p. 133 - Eq.(5.45), first line, last term should be ... tan e_i (add subscript i to the tan e).
p. 142 - last paragraph, first line should be "...to use **relatively** small dipole..."
p. 148 - Mat. 5.4 a and b can be written more elegantly as follows:

```
Mat .5. 4 - "Surface error from Aperture efficiency";
data = {{3.5, .53}, {2.75, .5},
   {2.1, .45}, {1.3, .27}, {1.13, .21}, {.87, .1}};
datpl = Table[{(1 / data[[i, 1]]) ^2, Log[data[[i, 2]]]}, {i, 1, 6}];
fit = FindFit[datpl, a + b x, {a, b}, x];
Plot[a + b x /. fit, {x, 0, 1.5}, Frame → True, GridLines → Automatic,
 PlotRange → {{0, 1.5}, {-.5, -2.5}}, FrameLabel → {"1/λ²", "Log ηA"},
 Epilog → {PointSize[0.02], Point[datpl]}]
ϵ = Sqrt[Abs[b] /. fit] / (4 π)
ηA0 = Exp[a /. fit]
```

some incomplete references have now been issued:

p. 196 - ref. Baars, Lucas et al: *IEEE Antennas and Propagation Magazine* **49**, No. 5, 24-41, 2007.
p. 243 - correct reference: Baars, J.W.M., R. Lucas, J.G. Mangum and J.A. Lopez-Perez, Near-Field Radio Holography of Large Reflector Antennas, *IEEE Antennas and Propagation Magazine* **49**, No. 5, 24-41, 2007.
p. 244 - ref. Greve and Mangum: *IEEE Antennas and Propagation Magazine* **50**, No. 2, 66-80, 2008.
- ref. Snel et al: *IEEE Antennas and Propagation Magazine* **49**, No. 4, 84-101, 2007.

http://www.springer.com/978-0-387-69733-8

The Paraboloidal Reflector Antenna in Radio Astronomy
and Communication
Theory and Practice
Baars, J.W.M.
2007, XVII, 253 p. With CD-ROM., Hardcover
ISBN: 978-0-387-69733-8