

the .decimal point

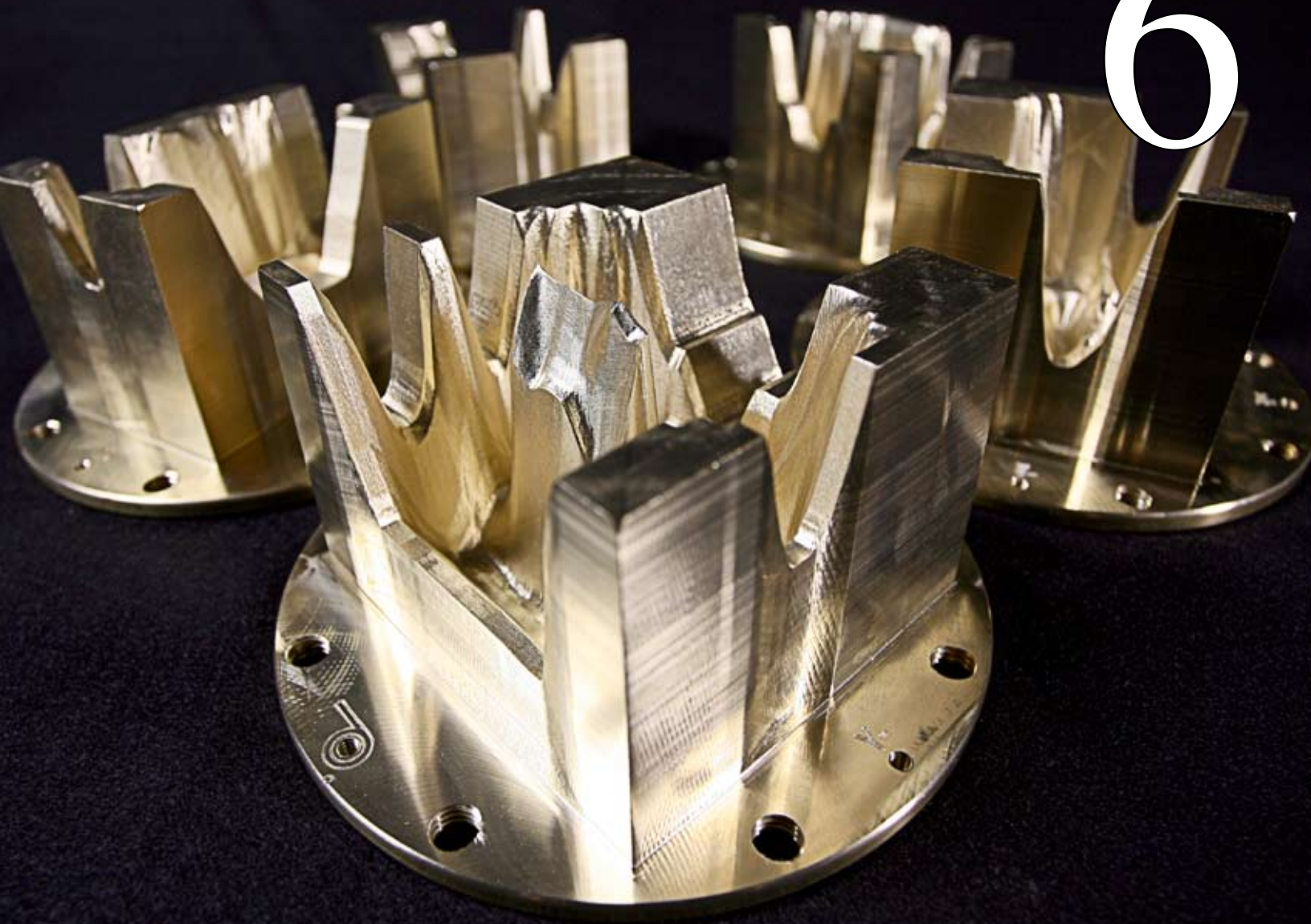
YOUR SOURCE FOR SOLID INFORMATION

VOLUME 2

Fall/Winter '07

Issue

6



THE .DECIMAL FAMILY Med Ctr of South Arkansas

Dianna Chambers, RT(T), CMD
discusses implementing .decimal

Page 2

CLINICAL PROFILE Team Goshen

A profile of The Center for
Cancer Care in Goshen, Indiana

Page 5

SOFTWARE RELEASE p.d 3.1

.decimal's latest update of p.d,
the custom planning software

Page 9

the .decimal point

VOL 2, ISSUE 6, FALL/WINTER '07

CONTENTS

- 1** FROM THE CEO
It's been a busy year for .decimal, from Symposiums to software releases to Six-Sigma training.
- 2** THE .DECIMAL FAMILY
Dianna Chambers, RT(T), reflects on implementing .decimal in the Medical Center of South Arkansas.
- 3** CLINICAL RESEARCH
Ken Cashon, M.S. outlines several research projects currently in development, including q.d.
- 5** TEAM GOSHEN
Benjamin Nelms, Ph.D. profiles Dr. James Wheeler and The Center for Cancer Care in Goshen, Indiana.
- 9** p.d 3.1
.decimal's newest software update focuses on serving the existing customer base, while featuring new advancements.
- 11** NEWS BRIEFS
AAPM 2007, .decimal's expansion, and the Compensator-Based IMRT Symposium.
- 14** QUALITY MATTERS
Internal focus on our quality system and training procedures will have external benefits.
- 15** FUTURE EVENTS
Mark your calendar! .decimal will be attending several shows, meetings, and events over the next six months.

ABOUT THE COVER

A set of five .decimal compensators; cleaned, sanded, inspected, and ready for shipment to the customer.

The .decimal point is edited and designed by Brendan Sullivan and Dan Manata at .decimal, Inc. in Sanford, Florida.

Do you have a story idea or would you like to contribute to the next newsletter? Would you like to subscribe to the free distribution of the .decimal point newsletter? Please contact us at 800.255.1613 or 407.330.3300, or visit us online at www.dotdecimal.com.

© 2007, .decimal, Inc.
All Rights Reserved



BENCHMARKS

Letter from the CEO

Welcome to another edition of *the .decimal point*. We have a wealth of information in this issue, from customer experiences and p.d enhancements to exciting news about our successful symposiums and our continuous improvement initiatives.

This issue features a profile on the The Center for Cancer Care in Goshen, Indiana. Dr. James Wheeler, who runs the clinic, was a speaker at the .decimal symposium at Notre Dame University. Being at a facility that has all the "toys" (e.g. Varian MLCs, Tomotherapy, and .decimal compensators), Dr. Wheeler has a unique perspective, and he shared with the attendees his rationale for determining when compensators were the method of choice in his clinic.

Speaking of the .decimal symposium, we recognize the need for improved communication among our rapidly growing customer base. One way is to initiate a traveling symposium for Compensator-based IMRT. .decimal has held two, the first at Notre Dame and the second in Orlando. Both symposiums were tremendously successful thanks to all who attended. We anticipate having one symposium per quarter for the next two years.

The interest in proton therapy continues to grow and all the major vendors are looking to .decimal to provide their custom, patient-specific range compensators and apertures. p.d 3.1 now includes a fully DICOM RT Ion compliant translator that enables proton facilities to transfer their devices to our facility in Florida for manufacturing. This software has some very significant advances for internet-based manufacturing.

.decimal strives to raise the bar for quality products and service for its customers. Training was recently completed by several staff members in the tools and concepts of Six Sigma. Out of our entire staff of fifty-six employees, we now have twelve Six Sigma Black Belts and four Six Sigma Green Belts. The benefits of such a strong commitment to quality is reflected in .decimal's history of not raising prices over the past seven years, even as brass costs have grown exponentially.

Again, thanks to all of .decimal's customers for their support over the years. Please do not hesitate to contact me if ever I can be of assistance. I hope you enjoy this edition of *the .decimal point*.

Sincerely,

Richard L. Sweat, *President & CEO*

THE .DECIMAL FAMILY

CUSTOMER TESTIMONIALS

Dianna Chambers, RT(T), CMD

Medical Center of South Arkansas
El Dorado, Arkansas

The facility where I work is located in rural South Arkansas. When I began working there a little over two years ago, I strongly felt that we needed to start implementing IMRT as soon as possible. I had three years of IMRT experience with another treatment facility, and I had witnessed firsthand the positive effects of using IMRT. Unfortunately, as we all know, it can be hard to explain to administrators why they should invest large sums of money in a new treatment machine, especially in such a rural location. Then we found .decimal. They came in, made a presentation, and within three months we had treated our first patient!

My facility began using .decimal earlier this year, and it was a very easy and quick implementation. Of course, with any new procedure, there can be unforeseen problems that arise during this process. However, due to the training through Infinite Planning Solutions and the support of .decimal, our start-up went without a hitch. I have received excellent help with my plans through both companies.

My previous experience with breast IMRT was doing field-in-a-field, which is not an option with compensator blocks. Since the implementation of .decimal's compensators, we have found that our breast patients have decreased side effects when using more than two coplanar fields. We are presently treating pelvis and breast patients, and will soon start treating Head & Necks.



From left: Sonna Blackburn RT(T), Pam Chandler RT(R)(T), Dianna Chambers CMD, RT(T), Sue Nash

.decimal has been very responsive in getting every question answered and helping us in all aspects of our implementation. There has never been a time when we haven't been able to call and get our questions answered quickly. They have a great staff! If I call asking about a certain set of compensators, whoever picks up the phone is quick to find my answer. The physics staff is very helpful with our questions on QA. We have been very pleased with all the aspects of .decimal and plan on continuing our affiliation with them for a long time.



Do you have a .decimal story you'd like to tell?
We want to hear from you!

You can contact us at 800.255.1613 or visit www.dotdecimal.com to share your stories, letters, and pictures. You may see your submission in a future edition of *the .decimal point!*

CLINICAL RESEARCH

r.o

*Research Efforts
at .decimal**by Ken Cashon, M.S.*

The use of compensators for the treatment of cancer has existed for almost fifty years. In the beginning, they were manually configured to account for lack of tissue. Now, in the age of computer controlled milling machines on steroids like the ones here at .decimal, we are making very complex and sophisticated parts “on the fly”. Using the internet and sophisticated computer controlled processes, compensators today are nothing like those of the old days.

As a result of this sophistication and with .decimal’s desire to improve every process to ultimately provide the best care and support for our customers, we have very exciting and innovative research projects under way.

Nothing says more about the effectiveness of compensator-based IMRT than visual tools. We are asking our customers to be part of our research team. We would like to extend an invitation for case studies, side-by-side comparisons of treatment plans with comp-IMRT and treatment plans with either MLC-based IMRT or 3DCRT. Our ultimate goal is to create a library of various disease sites and place it on our website for anyone to view. A template for performing these case studies has been created and if you are interested, please contact us at .decimal for more details about this program.

Other efforts in research include the beam modeling of compensators in the treatment planning systems.

It is critical that the physicist at a new site address issues dealing with changes in energy spectra for machine models using compensators. We have several groups looking at this in more detail. Our goal is to help provide a methodology for preparing your clinic for

compensator-based IMRT and to then bring in our team and do a complete q.d implementation process. If you would like to contribute to this project, please let us know.

One area we find that compensators provide a superior advantage is their lack of daily variance. They just don’t change day to day. A project has been proposed and .decimal is willing to fund an institution performing MLC-based IMRT that could investigate the magnitude and causes of daily variances that might be inherent in fluences delivered by MLC.

.decimal Case Study Template

What type of disease is being investigated using solid modulator IMRT?

Is this a comparison with traditional 3D external beam treatment methods or with another IMRT modality?

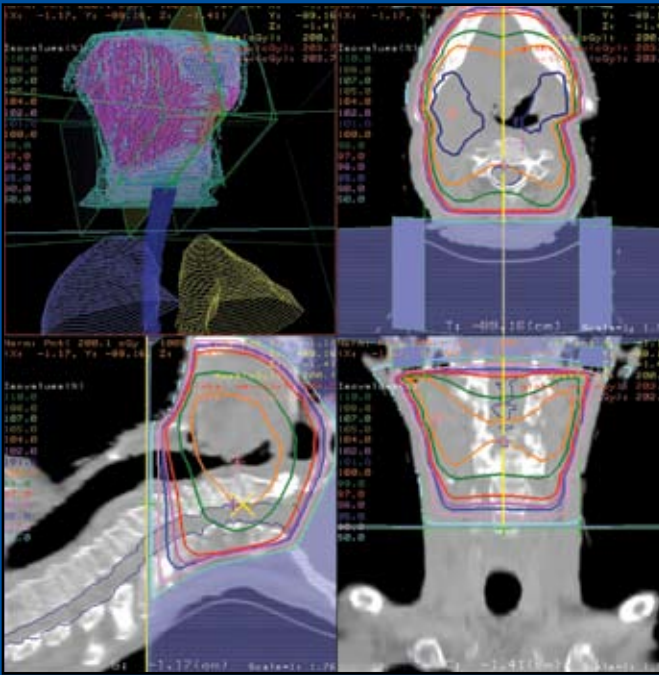
To better understand the nature of the disease being evaluated basic characteristics about the disease would be helpful. For example, local control rates, gender predominance, radiosensitivity of the disease etc. If you do not have this information leave the section blank.

Above: The .decimal Case Study Template

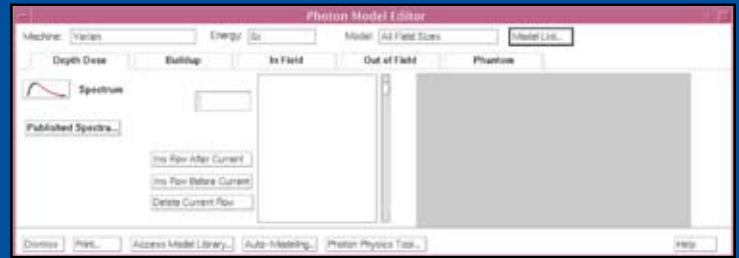
Below: An early compensator from the 1960s



Image courtesy of Kent Larson, M.S., Bayfront Medical Center



Above Left: An XiO treatment plan
Above Right: A Pinnacle³ Photon Model Editor



on the CMS XiO treatment planning system and are preparing to do some irradiation measurements to evaluate the efficacy of this technique. If successful, other areas of the world with a large supply of Co-60 machines will have this tool

many more parameters. And finally, we foresee the complementary use of compensator-based IMRT with existing and future techniques of IGRT as a definite positive. Please contact .decimal if you are interested in having us perform a q.d data collection. Our goal is to collect information from our existing customers, and use this data to help treat patients with the highest possible accuracy.

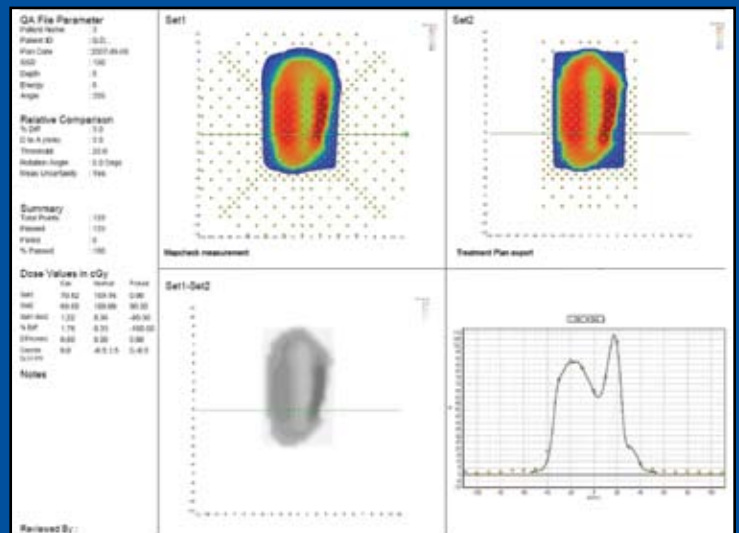
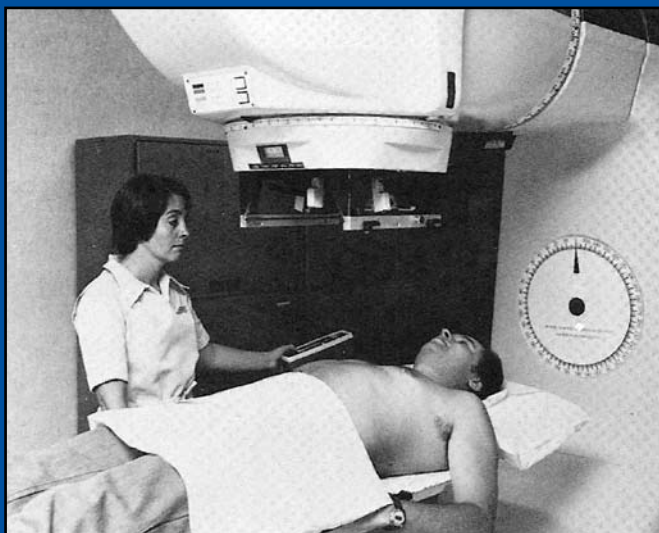
In many countries, linear accelerators are not available due to power issues, and cobalt-60 radiotherapy machines are used quite extensively. We have a group of physicists from India that is very interested in using brass and aluminum compensators for the purpose of treating patients with intensity modulated radiation therapy. We have created plans

to use.

q.d is a process that .decimal's team uses in order to competently and completely bring a clinic to the point of patient treatments. With the data we are collecting with q.d we have a powerful tool to compare treatment planning systems, linear accelerators, measuring devices, compensator versus MLC, and so

.decimal strives to provide the best quality for your clinic and this means looking at new ways of using compensators in the radiation therapy field. As you can see, many projects and ideas lay ahead of us and we are glad to see research relationships being developed. If you are interested in participating in any of the above projects, please contact .decimal today at 800.255.1613 or visit www.dotdecimal.com.

Below Left: A cobalt-60 radiotherapy machine
Below Right: Collected information used in q.d



CLINICAL PROFILE

Team Goshen

Making Good in “The Maple City”

by Benjamin E. Nelms, Ph.D.

The “Technology Demographics” of Solid IMRT

The population of Solid IMRT users is strong and ever-growing. As of September, 2007, there were a total of 174 .decimal customers. In the month of August, 2007, .decimal received orders for IMRT modulators from 117 unique radiation therapy centers. As this population grows, the demographic profiles of the user base become clearer. Of great interest are the “technology demographics” – the breakdowns of the different technologies which are used at .decimal customer sites (treatment planning, linear accelerators, IGRT quality assurance, etc.).

On the delivery side, the demographic seems to be clumping into three major sub-populations. The first, and most obvious, sub-population is comprised of sites that have modern linear accelerators that are not equipped with MLC. For these sites, .decimal brings their perfectly good high-energy photon machine(s) up to state-of-the-art IMRT delivery capability without

requiring the huge up-front capital investment. The second major sub-population consists of sites that have MLC and are capable of MLC-based IMRT but choose to use Solid IMRT instead. This choice is made for any number of reasons, with one common reason being the time inefficiency of certain segmented MLC deliveries, a problem that leads to longer delivery time, longer fraction time slots, and added discomfort for the patients. The third major sub-population of Solid IMRT users is quite interesting but very expected – the sites that are experienced and effective practitioners of MLC-based IMRT, but that choose to have .decimal “in their toolbox” for special cases where Solid IMRT presents obvious clinical and practical benefits.

The Center for Cancer Care in Goshen, Indiana is a textbook case of the third sub-population in the Solid IMRT technology demographic. The first sentence in this center’s mission statement is, “Our mission is to provide the best cancer care available to our patients

and their families.” One visit with the clinicians at Goshen’s Center for Cancer Care and you will realize that, in wonderful ways, this center takes this statement seriously and literally. It is not relegated to be some generic, feel-good statement for the web page. Truly, and simply, this does seem to be their mission.

Welcome to Goshen, Indiana

“The Land of Goshen” in ancient texts is hallowed ground, located around the delta of the Nile River in northern Egypt. If you were to draw an isosceles triangle with Mt. Sinai as the south point and the city of Jerusalem in the northeast, you’d trace out that the northwest corner would be smack dab in the middle of the Land of Goshen.

Well, you don’t have to go so far to find “the other Goshen” right here in the USA. “The Maple City” (as it is known to those familiar) is at the northern, central edge of Indiana, near the Michigan border in an area often colloquially called “Michiana.” It is about 100 miles east of Chicago



Above: The Center for Cancer Care

Image courtesy of John Lowden, M.S.

and about a marathon run east from South Bend. Originally settled by the Amish and Mennonites circa 1831, the friendliness and hard-working, honest-living character seems to be deeply engrained in the DNA of the town. It's quintessential Middle America. You'll find a Dunkin' Donuts and fervor for local high school sports just like any humble city of 30,000 or so people.

Goshen will surprise you, though. Driving into Goshen, little will you know that Elkhart County is somewhat rich in entrepreneurial history, such as being a boom-town of the recreational vehicle (better known as "RV") industry. A lot of the fine folks of the area have re-invested in their community through a dedication to offer the finest medical care available. Which brings us back to Goshen's Center for Cancer Care...

The Center for Cancer Care, and Team Goshen

As mentioned earlier, Goshen's cancer center has an impressive technological profile to back up their mission to provide "the best cancer care available." In the radiation therapy department, they have a Varian 2100 EX with 120-leaf MLC, a Tomotherapy Hi-Art machine, and a new Varian Trilogy on the way. They use the latest and greatest Varian Eclipse treatment planning software, often incorporating multimodality imaging to more accurately delineate target volumes (and are also planning for a dedicated PET/CT device soon). IGRT is the norm, with daily localization via tomotherapy CT, ultrasound, or portal imaging. They are also experts in HDR brachytherapy and mammosite treatments.

But as we all know, a football team with the neatest jerseys, an immaculate home field turf, and the cleanest bleachers does not automatically make them the state champs. It takes players. And Goshen's Center for Cancer Care has good players, so to speak. Really good players.

As a case in point, I'll recount an experience I had at a regional Solid IMRT users' meeting this summer in South Bend, Indiana. The meeting was very well-attended, and the talks very valuable, practical, and in all sincerity, pretty darn interesting. On the morning of the first day was a talk by somebody I had never met, Dr. James Wheeler. Perhaps I was charging up my coffee or something during the speaker introduction, and as a result I was not quite sure of Dr. Wheeler's position or background. A few minutes into the talk, I was

continued >



Above: Staff members from The Center for Cancer Care in Goshen, Indiana.

Image courtesy of John Lowden, M.S.



already thinking to myself: “Cool. This is a physicist who really knows his stuff.” A few more minutes into the talk and I had added to my subconscious impression: “Wow. He’s hitting scientific and analytical thinking in perfect stride.” Then came the kicker a few minutes

later, when it became apparent that Dr. Wheeler was not Dr. Wheeler, Medical Physicist, but rather Dr. Wheeler, Radiation Oncologist. As it turns out, Dr. Wheeler is the Director of the radiation oncology program at Goshen, and M.D./Ph.D. with a doctoral degree in Physical Chemistry.

Dr. Wheeler’s command over the challenges and solutions of radiation oncology is matched by the rest of the staff, or “Team Goshen” as I’ll call them here. The physics staff has aces like John Lowden and Brent Murphy (who also founded Advanced Radiation Consulting and Infinite Planning Solutions, which offer nationwide hands-on training courses in clinical medical physics), a fine-tuned IMRT/dosimetry staff, and a crew of therapists who have mastered the process of per-fraction IGRT. The quality and experience goes all the way to the top, to Medical Director Douglas J. Schwartzentruber (MD, FACS) whose accomplishments include

being the Senior Investigator of the surgery branch of the National Cancer Institute (NCI) for 13 years.

Given this staff and equipment profile, it goes without saying that .decimal, Inc. was very happy to have their product selected to join Team Goshen, a decision the staff at Goshen made about a year ago (late 2006). Goshen finished commissioning of Solid IMRT rapidly, in December of 2006. Earlier that year they had commissioned their Tomotherapy system (July 2006) and five years before that they had commissioned MLC-based IMRT (2001).

Team Goshen’s Early Experiences with Solid IMRT

Although they have less than a year with Solid IMRT under their belt, Team Goshen seems to have joined the list of seasoned veterans, rich in experience and opinions.

A common question by those learning about Solid IMRT is whether it complicates workflow of treatment planning or actual delivery (with the therapist having to walk into the treatment room to load the custom modulator for each beam). Regarding treatment planning, John Lowden (who has experience with Solid IMRT with XiO, Pinnacle3, and Eclipse) responded to this question with an emphatic “No” and even added, “The amount of trials (iterations) that have to be run to match the optimized fluence are considerably less. The compensators are the optimal fluence.” He added that with Pinnacle and XiO, the planning for Solid IMRT is easier (vs. MLC-based) and for Eclipse about the same, the only difference being that with Eclipse the beam weights must be re-entered by hand after the DICOM RT Plan (from the .decimal program “p.d”) is re-imported back into Eclipse.

As for the workflow of the daily

fractions and the therapist in-and-out of the room with each beam, Lowden recounted something important, “A benefit that has been lost with the addition of recent technology (MLC, Tomo) is the therapists’ recurring checks of patient positioning during the treatment. If the therapists no longer go in the room between treatment fields, patients are not being double-checked to see if they are remaining on their (positioning) marks.” (Note: This thought was echoed by Dave Vassy, Chief Medical Physicist in Spartanburg, SC, at the recent Solid IMRT Conference in South Bend. Dave also finds the in-and-out of the therapist required by Solid IMRT is of great practical benefit in verifying the patient’s position remain correct during the fraction.)

Also regarding delivery efficiency, Lowden claims that Solid IMRT is often preferred due to its efficiency advantages over other techniques. “Solid IMRT has decreased the treatment time in treating head and neck patients. We have a Varian 2100 EX which ‘splits fields’ if the field size is greater than 14 cm in width, which

is almost always the case with head and neck patients. Our 7-field beam arrangement would turn into 14 treatment fields. This increased our treatment times from 15 min to 25 min. Solid IMRT does not have this problem, and it also decreases the total monitor units delivered by about a factor of 3.”

On my first visit to Goshen, they had just received a shipment of .decimal brass modulators for a complex (and large volume) lung treatment. In fact, Solid IMRT has become the treatment of choice for radiation delivery to the lung at Goshen, based on the limited dose degradation of a temporally static modulation vs. the temporally dynamic modulation techniques (such as Tomotherapy or MLC).

Dr. Wheeler elaborates: “With solid tissue compensators, we do not have to worry about geographic miss due to respiratory motion. It’s much easier to use solid tissue compensators than to incorporate all the complexities of full respiratory gating. We are now using solid tissue compensators for all of our lung cancer patients and our patients

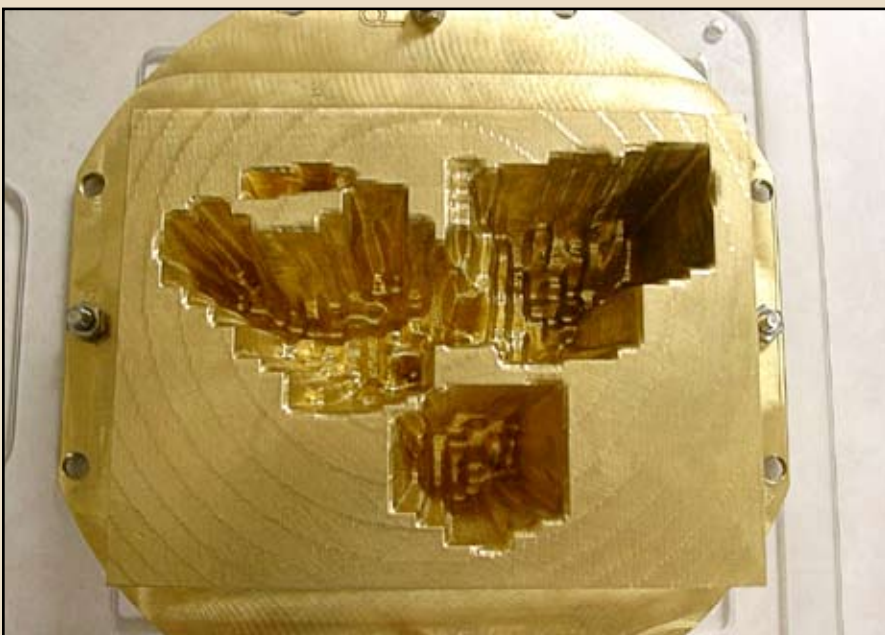
who have distal esophageal cancer, where tumor motion could also be an issue.”

Asked about whether his colleagues in the industry are catching on to the advantages of Solid IMRT in cases of organ motion, Dr. Wheeler replied: “It is likely to take a few more years before clinicians fully appreciate the importance of organ motion. As more and more systems develop 4-D treatment planning software, the simplicity of using solid tissue compensators will become more apparent. Even centers with sophisticated respiratory gating technologies can still use solid tissue compensation to limit the target volumes without having to ever worry about the leaves from the multileaf collimators being closed at the time the tumor is in a particular location.”

The set of brass modulators I saw on my visit was impressive, but I had to note that each was fairly large (due to the large fields) and could potentially be cumbersome if a therapist was diminutive. I asked Lowden about this. He responded, “The weight of the compensators for small fields is negligible, but with large lung fields the weight can be as high as 20 lbs. This is difficult for some therapists and they need assistance, which slows the process down.”

But as I handled and admired one of the heavy lung modulators, a therapist (and a diminutive one at that) walked in the room. I asked her if she thought the weight of large modulators was ever a problem. She rolled her eyes, acknowledging the question but assuring me it was nothing she couldn’t handle.

Such is the way of Team Goshen – top notch, and up to the challenge.



Above: A solid brass modulator used in lung therapy *Image courtesy of John Lowden, M.S.*

p.d 3.1

A Release for Everyone

by Benjamin E. Nelms, Ph.D.

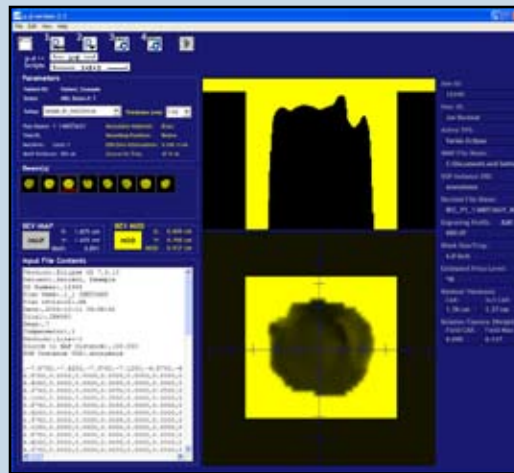
A Brief History of “p.d”

p.d is a software program that integrates commercial treatment planning systems (TPS) with .decimal modulator manufacturing, thus the name: “p” (planning) plus “.d” (dot decimal).

As many of you may know, the .decimal compensator system first became widely available in about 1999 via full integration into the CMS “XiO” treatment planning system, followed by the .decimal/XiO integrated solid IMRT system in 2001. For years, the active sites grew within the XiO user base.

However, many other radiation therapy centers who wanted to treat patients with solid IMRT were not able to do so because their TPS, such as the Philips Pinnacle³ or Varian Eclipse system, did not have solid IMRT capability. In early 2006, .decimal released p.d version 1.0. This version integrated the .decimal solution with Pinnacle³. Then, later that year, p.d version 2.0 integrated (via DICOM RT) with Eclipse.

p.d 2.1 followed. This release had the much-awaited, customer-requested feature of batch processing. Thereafter, all modulators of an IMRT plan could be opened, designed, and ordered at once (see *Figure 1*). Version 2.1 also introduced modulator reports – electronic, but printable, reports generated per modulator (*Figure 2*). Version 2.1 was also the first release that provided value to XiO



p.d 3.1 at a glance

Figure 1 (left)
The batch processing feature of p.d Version 2.1

Figure 2 (right)
The modulator report feature of p.d version 2.1

users (as well as users of other TPS, such as Prowess, with integrated .decimal capability), as these users could open batches of .decimal files for viewing and generation of the reports.

Finally, p.d 3.0 released in stealth-like fashion in the summer of 2007. The “stealth” factor resulted from the fact that p.d 3.0 added functionality for the proton therapy industry, currently a relatively small (but growing) subset of radiation therapy. Version 3.0 integrates with the Varian Eclipse proton TPS, designing and ordering per-patient/per-beam proton components, such as range compensators (single- and double-sided) and apertures. These components are placed in proton beam lines to customize dose to radiation targets (*Figure 3*).

The Objective Behind p.d 3.1

p.d version 3.1 follows in the spirit of p.d 2.1; that is, it focuses on serving the existing customer base

rather than introducing different functionality. Version 3.1 will feature advancements for each type of potential user: Eclipse IMRT, Eclipse proton, Pinnacle³ IMRT, XiO/other TPS with integrated .decimal, etc. The content of p.d 3.1 has been driven by user feedback and built with one overriding objective – to serve the user.

p.d 3.1 Content

The major content of p.d 3.1 is summarized below.

For Solid IMRT Users (XiO, Eclipse, Pinnacle³, etc.)

- *Enable “IMRT-e” which makes solid IMRT more monitor unit efficient and enhances maximum relative blocking in low dose regions by dropping the minimum compensator thickness within the irradiated area to 1 mm instead of 6 mm (Pinnacle and Eclipse).*



(Pinnacle and Eclipse). NOTE: The clinical origin that spawned the request for this feature will be presented at ASTRO by Lacerba et al, Radiation Oncology Resources.

to .decimal format, but their content will not be modified.

- Allow a user name and password rather than just a User ID.
- Allow a physicist-level login that enables editing certain key parameters only for the medical physicist (Modulator Parameters, Proton Setup Parameters) but disables for others (i.e. makes these data view/read only).
- For files read in via DICOM RT, allow a user-definable conversion of IEC gantry angle to machine readout gantry angle (see Figure 4).
- Improvements to the beam weighting displays/files – improving for low weight beams and ordering the beams by beam number (Eclipse).
- Allow input of native (proprietary) Pinnacle³ ASCII compensator files. These files will be opened and converted

- Alert the user regarding invalid naming of Plans/Trials/Beams (Pinnacle³).

For Proton Therapy Users

- Read proton plan data (range compensators, apertures, etc.) directly from DICOM RT ION files. Any TPS that exports correctly DICOM RT (Ion) Plans will be supported.
- Allow support for bifurcated (multiple) cutouts per proton aperture.

Summary

We do not intend to make the p.d program bigger and more complex. On the contrary, the goals of p.d have always been threefold: functionality, accuracy, and simplicity. Staying on top of these goals requires not a complacent standstill, but consistent progress. We thank our users for their input, and we look forward to offering p.d version 3.1.*

* p.d 3.1 is currently scheduled for release in early January, 2008.

Figure 3 (right) Proton range compensators and apertures in p.d version 3.0

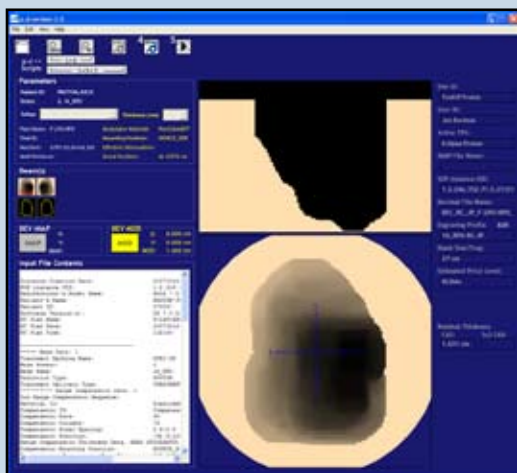
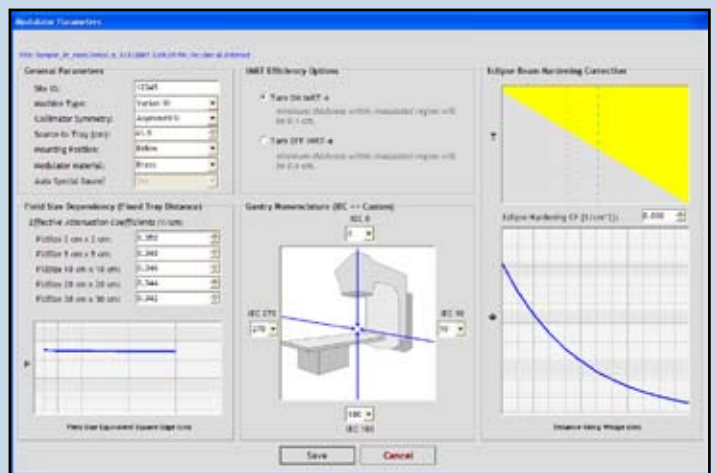


Figure 4 (far right) Conversion of IEC to custom/non-IEC gantry angle conventions



NEWS BRIEFS

AAPM 2007

.decimal attended AAPM 2007 in Minneapolis earlier this summer. This conference was very successful, as it featured a first for us: In-Booth Lectures.

Four presentations were given over Monday, July 23rd and Tuesday, July 24th. These informational lectures were very well attended, and we look forward to hosting additional lectures during ASTRO 2007 in Los Angeles.

.decimal also held its Second Clinical Advisory Board meeting on Monday, July 23rd. Attendees weighed in on several topics, ranging from Beam Model Quality, 3D Plan Quality, and Plan vs. Actual delivery in q.d to discussions about Electrons and the Proton Initiative.

We at .decimal would like to thank everyone who visited our AAPM booth, and we look forward to seeing you at future shows!

.decimal hosted the following four presenters during AAPM 2007:

Benjamin Nelms, Ph.D.
The Physics of Compensators

Sha Chang, Ph.D.
*Compensator IMRT
Treatment Efficiency*

Raj K. Mitra, M.S.
Very Large Field IMRT

E. Ishmael Parsai, Ph.D.
*Conventional MLC-Based Versus
Solid Compensator Based IMRT
Treatment Techniques: A Clinical
Review After Five Years*



Above: Sha Chang, Ph.D. addresses AAPM attendees at the .decimal booth.



NEWS BRIEFS

.decimal Continues to Grow

In September 2006, .decimal was staffed with 32 employees. As of September 2007, that number has grown to 50 employees, an increase of over 50%. We are pleased to be joined by many new staff members in several departments, including Quality, Manufacturing, Marketing, Engineering, Administration, and Training.

We also have increased our manufacturing capabilities by adding more milling machines to our shop floor. In September 2006, we were using 21 machines. As of October 2007, we are equipped with eight more, bring us to a total of 29 Mazak CNC milling machines, all housed within our 35,000 square foot headquarters. At a cost of \$115,000 - \$145,000 per unit, that's an investment of nearly \$1,000,000!

"We continue to expand our

capabilities as demand for solid compensators grows." says Chris Warner, M.S., .decimal's Senior Vice President. "Our customers rely

on us to stay on top of our game, and we take pride in not only meeting their expectations, but exceeding them."

Below: .decimal's manufacturing floor, home to 29 Mazak CNC milling machines.

**By the Numbers**

As of September 2007...

174

Facilities with implementation

33

States nationwide

73,000

Compensators manufactured

21,000

Patients treated

● *Facilities with .decimal implementation*



NEWS BRIEFS

Introducing the Compensator-Based IMRT Symposium

The Solid IMRT customer base is growing. As a result, .decimal has recognized the need for a forum where research and experiences can be shared, in order to help educate the radiation therapy community. As a solution, .decimal has organized a Solid IMRT Symposium, scheduled every quarter over the next two years. The first was held at Notre Dame University in South Bend, Indiana and the second at The Gaylord Palms Resort in Kissimmee, Florida. Both were tremendously successful, offering a combined total of 33 research lectures, case studies, clinical testimonials, and vendor exhibitions. Presenters thus far have included Bill Bice, Ph.D., Ben Nelms, Ph.D., Sha Chang, Ph.D., Dave Vassy, M.S., and John Roeske, Ph.D.

Ultimately, the goal of these Symposiums is to provide as much clinical information as possible to those in the radiation

therapy community. For those already practicing Solid IMRT, the Symposium offers ways to improve current techniques and suggest new applications. For those not yet practicing, or those with a general interest in Solid IMRT, the Symposium provides a great deal of knowledge, case studies, and testimonials that help illustrate when and how Solid IMRT can be used.

We invite you to submit an abstract for the next Compensator-

Based IMRT Symposium, which will be held at The Venetian Resort in Las Vegas, Nevada. The Symposium will take place Friday, January 25th and Saturday, January 26th, 2008. Abstracts should be received no later than November 15, 2007. For more information, or to register as an attendee, for the next Compensator-Based IMRT Symposium, please visit us online at www.dotdecimal.com. You will also find overviews of previous Symposiums, as well as all of the presentations in PDF format.



QUALITY MATTERS *by .decimal's Quality Department*

Internal Focus Leads to External Benefits

ISO 13485

.decimal is enhancing its Quality System by becoming ISO 13485 certified. Created by the International Organization for Standardization, ISO 13485:2003 and our current ISO 9001:2000 system share the key "process model" approach to quality system structure. However, ISO 13485 goes a step further by focusing directly on the medical device manufacturing industry. This standard is more comprehensive and detailed, and stresses aspects (documentation of activities, traceability, product cleanliness, personnel requirements, sterilization, etc.) that are of acute importance to medical device companies, the agencies that regulate them, and end users.

ISO 13485 is often seen as the first step in achieving compliance with foreign regulatory requirements. For example, Canada requires that medical device manufacturers marketing their products in Canada must have a quality system certified to ISO 13485. Once ISO 13485 certified, .decimal will move forward to obtain a CE mark which will allow our valuable technology to be available to cancer patients around the globe!



The quality of an employee's work is directly proportional to the quality of their training. To ensure our employees are trained on and able to follow established procedures and processes consistently, we have implemented learning.decimal (l.d), a formal learning strategy.

By analyzing the various jobs at .decimal and the training currently available we have designed and implemented training programs that capture and share best practices throughout the company.

The l.d training methodology includes computer-based self-instructional modules, structured on-the-job training, competency assessments and frequent company-wide informational sessions that encourage dialogue and interaction. The project has streamlined our training process and is already having an impact integrating new personnel and expediting cross-training.

A potential expansion of the l.d Project could be to use this same proven methodology to support the learning needs of our customers via our website.

Six Sigma

Six Sigma is a disciplined methodology that uses data and statistical analysis to focus on process improvement and variation reduction. The concepts can be applied to any activity that is concerned with cost, timeliness, and quality of results. Potential financial benefits are studied to help select and prioritize process improvement projects.

6σ

.decimal has pursued two levels of training: Black Belt and Green Belt. We now have twelve Black Belts whose leadership of project teams includes training and coaching. The Black Belts are well-versed in the Six Sigma principles along with supporting systems and tools. Our four Green Belts have learned a structured problem-solving methodology for addressing improvement projects, and have assisted with data collection and analysis.

Each of these employees received between 50 and 80 hours of in-class training and participated in a project that spanned twelve weeks and utilized over 50 hours of time. Some of the projects that the .decimal teams have completed include reduction of delays in implementation time for new customers, improvement in prediction of machine runtimes, and improvement of machine scheduling and capacity. Six Sigma is designed to provide tangible business results - cost savings that can be directly passed on to our customers.



Left: Sample screenshots from .decimal's l.d training program. These modules utilize audio, video, and testing to ensure that employees are properly skilled in the .decimal workflow.

SEE US AT THESE UPCOMING EVENTS!

- **ASTRO Annual Meeting**
Los Angeles, California
October 28 - November 1, 2007
- **2008 Winter Compensator-Based IMRT Symposium**
Las Vegas, Nevada
January 25 & 26, 2008
- **ACRO Annual Meeting**
Miami, Florida
February 21 - 23, 2008
- **FL - AAPM**
Orlando, Florida
March 6 - 8, 2008
- **2008 Spring Compensator-Based IMRT Symposium**
Kissimmee, Florida
April 2008

.decimal[®]

The benchmark for
custom radiation therapy



.decimal

121 Central Park Place
Sanford, Florida 32771
www.dotdecimal.com

To subscribe to the free distribution of
'the .decimal point' newsletter, please
contact us at 1.800.255.1613
or visit www.dotdecimal.com